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# University of the State of New York Bulletin

Entered as second-class matter August 2, 1913, at the Post Office at Albany, N. Y., under the act of August 24, 1912

Published fortnightly

No. 566

ALBANY, N. Y.

MAY 1, 1914

## Division of Vocational Schools

## VOCATIONAL SCHOOLS

PREPARED BY

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REPRINTED FROM THE TENTH ANNUAL REPORT OF THE EDUCATION DEPARTMENT

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## VOCATIONAL SCHOOLS

### THE OPERATION OF THE FORMER LAW

In May 1908, the State Legislature passed a law giving State aid to industrial and trade schools. Two years before Massachusetts by a similar enactment had anticipated the need for state-aided vocational instruction. In 1910 New York amended its Education Law to include State aid for schools of agriculture, mechanic arts and homemaking. The amount of aid given to the four types of instruction — industrial, trade, agricultural and homemaking — was small in comparison with the neighboring state of Massachusetts. It was felt, however, that it was better to try out the law as it stood, in order to ascertain whether there was any real demand for vocational instruction and whether the local communities would take the initiative and start these schools with even the slight financial encouragement offered by the State. The success of the new venture proved that the localities which inaugurated this new type of instruction really desired these vocational schools and were not merely seeking to avail themselves of an additional source of State aid.

Meanwhile, an experience of nearly five years showed that the law of 1908 with its amendment of 1910 handicapped the local communities in three respects: First, the State aid given was not sufficient to meet adequately the necessary charges for maintenance and equipment of a type of instruction necessarily more expensive than general education; second, the wording of the law required a "separately and independently organized school consisting of at least twenty-five pupils"—a condition which could not be met in the smaller communities; third, no provision had been made for evening vocational schools and part-time or continuation schools—types of instruction which more than any other strike at the very roots of a most useful and profitable education for industrial workers.

Other states had enacted laws relating to vocational instruction and New York, which formerly had taken a position of

conspicuity and leadership in the country, was relegated to the rear. New York had, however, the advantage which always accompanies experience and was ready to amend its existing law with intelligence and promptness.

#### IMPORTANT AMENDMENTS

In 1913 amendments to the Education Law providing for additional aid, new types of vocational instruction and important administration changes passed both legislative bodies without a dissenting vote. These amendments included the following: first, the authorization of part-time or continuation schools in which instruction shall be given in the trades and in industrial, agricultural and homemaking subjects, and which shall be open to pupils over 14 years of age who are regularly and lawfully employed during a part of the day in any useful employment or service. The subjects of study shall be supplementary to the practical work carried on in such employment or service. Second, the authorization of evening vocational schools in which instruction shall be given in the trades and in industrial, agricultural and homemaking subjects, and which shall be open to pupils over 16 years of age, who are regularly and lawfully employed during the day. These schools provide instruction in subjects related to the practical work carried on in such employment, but schools providing instruction in homemaking shall be open to all women over 16 years of age who are employed in any capacity during the day. Third, the word "school," as used in this article, shall include any department or course of instruction established and maintained in a public school for any of the purposes specified in this section. Fourth, an enrolment of at least fifteen pupils constitutes a vocational school unit. Fifth, an increase in the amount of State aid so that a school or separately organized department of vocational instruction may receive a sum equal to two-thirds of the salary paid to the first teacher of such instruction and an additional sum equal to one-third of the salary paid to each additional teacher employed exclusively in vocational instruction.

As a result of national agitation for state-aided vocational schools by the National Society for the Promotion of Industrial Education — a society headed by Honorable W. C. Redfield, Secretary of Commerce, and including in its membership many prominent labor leaders, manufacturers, educators and social workers — seven other states have enacted laws relating to these schools. All these laws

are uniform in their intent and purpose and similar in their scope. It is estimated that ten more states will pass similar laws at the next convening of their legislatures.

#### THE SPIRIT AND PURPOSE OF THE NEW LAW

The aforementioned amendments and the legislative acts of these states have encouraged the entire State to renewed activity in promoting vocational schools. By the spirit as well as by the letter of the New York law, the Commissioner of Education is required to enter actively upon the task of securing vocational instruction which will prepare the young people of the State to meet successfully the demands of shop, farm and home. The wisdom of such action is reenforced by the experiences of sister states as well as by the results already attained in this State.

The spirit and purpose behind the definite plans and policies outlined by the wording of the law and in the rules and regulations of the Commissioner of Education with reference to the organization and conduct of such instruction are based upon the theory that the local community and the State have entered into a joint partnership for the purpose of securing an effective scheme of vocational training such as will justify State aid under the law.

The amount of the aid over and above the amount apportioned toward the support of general education clearly implies that provisions for vocational instruction have been written into the Education Law of the State for distinct and definite purposes apart from those of general education. Vocational education differs from the general education of the ordinary school in that its controlling purpose is to fit its pupils to a greater or less degree for certain forms of profitable employment in the industries, in agriculture and in the household.

#### PRINCIPLES UNDERLYING STATE AID

It may be well to inquire why state aid is necessary to stimulate and encourage communities to carry on vocational education. It is evident that there is a marked tendency everywhere in American education toward an increase in the amount of state aid for education. This help is being applied more and more to encourage and assist local communities to undertake new and necessary kinds of training serviceable to childhood. Grants in aid for local government for the support of vocational instruction are indispensable for the following reasons: first, for an equitable mitigation of the in-

equalities of burden; second, to secure effective authority for the necessary supervision and control by the state government; third, to encourage the kind of expenditure most desirable in the interest of the state and the community as a whole; fourth, to make it possible to attain anything like a universal enforcement of a minimum which the state has prescribed through standards set up by state educational authorities for promoting and maintaining the education of industrial workers, which is absolutely essential to the industrial supremacy of a state; fifth, to pay the just share of the state in a kind of education which must always, comparatively speaking, be expensive and of state-wide benefit.

#### MEANING OF VOCATIONAL EDUCATION

Vocational instruction as now provided for is that form of education the controlling purpose of which is to fit for profitable and efficient service in agriculture, trades, and industries, or occupations connected with the household, and which is given to the individual who has already indicated an occupational aim in life, which aim this particular form of training is designed to assist him to attain.

Under the present law State aid may very properly be given to three types of vocational education: first, industrial education; second, agricultural education; third, household arts education.

“Industrial education” means that form of vocational education which fits for the trades, crafts, and manufacturing pursuits, including the occupations for girls and women carried on in workshops.

“Agricultural education” means that form of vocational education which fits for the occupations connected with the tillage of the soil, the care of domestic animals, forestry, and other wage-earning or productive work on the farm or in the garden or greenhouse.

“Household arts education” means that form of vocational education which fits for the business of homemaking.

#### CONTROLLING PURPOSE OF VOCATIONAL EDUCATION

It is seen that the controlling purpose of establishing vocational instruction in a public school system is to fit persons for profitable employment. Such instruction is not primarily to be given with the idea of holding children in school. All short-comings of a scheme of general education are not to be corrected merely by establishing vocational schools. If certain methods of instruction prevalent in vocational education, such as correlation of subject matter, adapta-

tion of instruction to the child's interests and needs, the use of smaller class units, and concrete activity work, are worthy of adoption as a part of general education, they should, contrary to the general impression, be taken over without expecting special State aid under an act of legislation which provided for vocational instruction. A vocational school, no more than any other public school, is not intended for naturally backward or defective children. It is an insult to labor and its workers to fill these schools with failures, abnormals, and child derelicts.<sup>1</sup> Neither is it to be assumed that certain children are hand-minded and are therefore to attend a vocational school while those who appear to master the present textbook study are obviously book-minded and are to continue their schooling on traditional lines. It is reasonable to assume that all normal children are concrete-minded and that they can more successfully master lines of study that relate to their experience, to their environment, and to their future needs. It is reasonable to expect that all children will acquire in their school life some practice in the activities connected with industry, agriculture or household arts. It is not reasonable to expect that the State can give special aid for instruction in these activities unless their dominant aim is preparation for successful wage-earning in the callings growing out of these activities.

There is no intention to disparage the present instruction in the household, agricultural and manual arts as given in connection with general education. Undoubtedly the instruction in these subjects might be improved. It might correlate more closely with other school activities. It might connect itself with practical demands of shop, home and farm. It might be given more periods a week in the school program. It might be taught by specially prepared teachers. All these points might be accepted as helpful suggestions for improving this work. If a school system adopts these suggestions and even imitates the methods of instruction used in vocational schools in order that they may contribute to a more effective general education, it is clearly evident that such work can not receive special State aid. Nevertheless, the only condition under which State aid may be given is when vocational instruction is given specifically and distinctly for definite preparation in the various callings of life from which the subjects of manual, household and agricultural arts have been taken.

<sup>1</sup> "We oppose any inclination to make the vocational department a purgatory for pupils backward or undesired in other classes. We desire that a place in the vocational school shall be evidence, by itself, of progress in scholarship." — New York State Federation of Labor.

## THE POWERS OF THE COMMISSIONER OF EDUCATION

To secure an allotment of State money for vocational instruction, the schools, departments or courses of vocational instruction are required by law to meet the rules and regulations of the Commissioner of Education governing organization, courses of study and conduct of instruction. These points will be taken up in order.

### PRELIMINARY INVESTIGATION

If the State has established the policy of forming a joint partnership with the local community for securing effective vocational training, it is the part of wisdom to investigate the need for such instruction before committing the two partners to an expense which may or may not be justified. It is suggested that a committee of citizens or a subcommittee of the school board be organized to investigate with a view of offering a practical contribution. This committee of inquiry should seek the cooperation of representative local agencies such as boards of trade, granges, trade unions, manufacturers, and women's clubs. It should consider questions such as the dominant occupations to be served by the proposed school and whether they offer opportunity for skilled employment; the type of vocational work demanded and whether it is of the all-day, part-time or continuation order, or the evening school order; the probable initial expenditure and the cost of maintenance.

The Commissioner of Education offers the following suggestive topics through which this investigation may be made, and he will be predisposed to look askance upon the establishment of a school not founded upon the study of the character of vocational instruction required in the community:

### SUGGESTIVE TOPICS FOR INVESTIGATION

#### I *School conditions:*

- 1 Number of pupils registered in elementary school.
  - a What per cent leave school upon finishing the work of the sixth grade?
  - b What per cent leave school during or upon finishing the work of the seventh year?
  - c What per cent leave school during or upon completing the work of the eighth grade?
- 2 Number of pupils registered in the high schools.
  - a What per cent leave during the first year?
  - b What per cent leave during the second year?
  - c What per cent leave during the third year?
  - d What per cent are graduated from the high school?

- 3 Average number of employment certificates issued each year. (Based on a five-year record)
- 4 What occupations did these youths enter?
  - a Industrial.
    - (1) Skilled.
    - (2) Unskilled (factory).
    - (3) Unskilled (messenger service, delivery boys, check girls, bundle boys, etc.)

b Agricultural.

c Commercial.

NOTE: Were the positions secured the kind wanted?  
Rate of pay?

- 5 What were the reasons given for leaving school?
  - a Economic.
  - b Health.
  - c Dissatisfaction with work offered.
  - d "Wanted to go to work," etc.
- 6 What special training does the school offer to prepare these boys and girls for special lines of activity?
- 7 Attitude of the child worker toward vocational training.
- 8 Attitude of parents toward vocational training. Would they send their children to vocational schools?

## II *Industrial conditions:*

- 1 List of the dominant industries in the community.
  - a Number of skilled employees engaged in these industries. Number of unskilled employees engaged in these industries.
  - b What industries offer thorough apprenticeship training? Specialized training? Technical or theoretical training?
  - c Number of youths 14 to 16 years of age engaged in these industries. Number of youths 16 to 18 years of age engaged in these industries.
  - d Demand for skilled workers.
  - e Attitude of employers toward vocational education. Are they willing to cooperate in the organization of some type of vocational school? Are they willing to pay graduates of vocational schools a higher rate of wage than those coming from the regular schools?

2 List of skilled trades.

- a Number of workers engaged in each trade. Number of apprentices in each trade. Average number of apprentices engaged each year.
- b How are the apprentices trained?
- c Is trade nonseasonable? Healthful?
- d Does trade offer opportunity for advancement?
- e Number of employees who take correspondence courses.
- f Attitude of labor unions or employees toward vocational training. Are they willing to cooperate in developing all-day, part-time or evening vocational schools? Are they willing to grant graduates of vocational schools credit for apprenticeship time?

#### ESSENTIALS IN ORGANIZATION

Whatever may be the plan of organization suggested or required by the Commissioner of Education, it is to be borne in mind that the spirit behind any plan of organization submitted by the locality for his approval or any plan suggested to the community by him is based upon the principle that the vocational instruction is not to be mingled or confused with the work of other departments or courses even though it may include some element common to all departments. The approval by the Commissioner of Education of an organization for a school of agriculture, mechanic arts and home-making in a small village does not imply that this organization is to be exactly duplicated in a city system of vocational instruction. The approval of each type of organization depends upon (a) the meeting of actual requirements of the Education Law on points of the law which allow no variation from its exact wording and intent and, (b) the meeting of reasonable rules or regulations of the Commissioner of Education which will administer the vocational instruction in a manner which reasonably guarantees that this instruction has a distinct vocational purpose and a definite manner of approach to that purpose.

In any organization purporting efficiently to establish and carry on vocational education for a community, adequate provisions should be made for: first, location; second, equipment; and third, instruction.

#### LOCATION

The location of a vocational school should be convenient for its special pupils and accessible by ordinary means of transportation.

Part-time or continuation schools should be in or near the industrial district.

#### EQUIPMENT

The equipment must be suitable and sufficient for the proposed work, and afford opportunities for practical experience in the occupations for which the pupils are to be prepared. Obviously it is based upon the requirements of the local course of study and no uniform requirements can be imposed.

#### PROVISION FOR INSTRUCTION

**Executive or administrative.** There should be a recognized leader capable of directing the school activities, organizing cooperative enterprises, and intelligently adjusting affairs between the school and other agencies. The success or failure of vocational instruction in the community will largely be determined by the efficiency of this administration. The viewpoint of the administrative officer toward educational, social, and economic questions should be tested. His executive ability, his academic preparation, and his ability to deal with people should be looked into thoroughly.

**Shop, farm, and home instruction.** Shop, farm, and home instruction should be kept in close relation to and accord with modern industrial practice. To accomplish the aim of this phase of instruction, the teacher must from experience be skilled in the vocation which he is teaching. He should be paid at least as much as he could earn in the field of production.<sup>1</sup> He should engage in the vocation often enough and for periods of sufficient duration to retain the viewpoint of the worker.

**Technical instruction.** The subject matter of technical instruction should be directly related to: first, the shop or farm experience of the pupils; second, the activities of the field of production. Shop mathematics, shop drawing, applied science, etc., are subjects which come under this head. Teachers should have an intimate knowledge of their subject gained through actual experience with the activity to which they are relating those technical subjects.

**Nontechnical instruction.** The nontechnical instruction is indirectly related to the work outlined in the two preceding paragraphs. The instruction should be from the standpoint of the work-a-day world and so directed as to develop the interest of the pupils

<sup>1</sup> "We oppose the engagement of incompetent mechanics as instructors and insist that the salaries of competent men shall at least be equal to the highest wages paid to journeymen in the trade represented by such instructor."—New York State Federation of Labor.

in liberal studies. The teacher should have the ability to select subject matter which has interest and value and the power to connect at every point the teaching of these liberal studies to the vital interests of the work-a-day world.

#### THE TEACHER

The most important factor in producing results is the teacher. The employment of competent teachers for the vocational instruction merits important consideration and communities can not be too exacting in selecting these teachers. The lack of textbooks, traditions and precedents places great responsibility upon the teachers.

It is well to distinguish between engaging a teacher who meets the approval of the Regents with reference to his general qualifications as named in the Regents Rules, and the engaging of a teacher who will conduct the work in such a manner that at its completion it may be approved for State aid. The fact that his qualifications for a special certificate to teach in a vocational school have been approved and that he has been given a proper license, is no criterion that his work in the school will receive approval. Approval of the general qualifications of an applicant for a special certificate is a single act by which his eligibility for a given kind of employment in vocational instruction is established. But approval for the actual work of a teacher already employed is a matter which is determined after due inspection.

As a member of a partnership, the State must insist upon satisfactory results and the establishment of the cooperative spirit between the state authorities and local agencies in deciding upon the qualifications of teachers for a particular service will often lead to an understanding of whether he should be nominated for the position by the local authorities. The state can not assume the responsibility which naturally and legally rests upon the community, nor can it assume the functions of a teachers agency.

#### COURSES OF STUDY

It is not possible to present specific courses of study for the various kinds of vocational schools. The particular planning, in the first instance, of courses of study for each school should be left to the local authorities who shall submit their programs to the Commissioner of Education for revision and approval. The five classifications of types of vocational schools indicated in the law

make mention of the conditions of admission to each type and in some measure suggest the line of work to be pursued, or at least imposes certain boundaries about the courses of study.

#### CERTAIN UNIFORM REQUIREMENTS

From the experience already gathered as well as in accordance with the general theory of vocational instruction, it is clear that there are certain uniform requirements in the courses of study of all types of vocational schools.

1 Pupils should be trained for the leading skilled occupations of the community.

2 Pupils should be especially fitted for their intended occupations.

3 Practical work should correlate with suitable technical teaching mentioned under 4.

4 The schools should teach mathematics, drawing, science and related subjects, to an extent and in a way practically useful to the pupils in the particular occupations for which they are being trained.

5 As nearly as school conditions will permit, the shop and laboratory work should be like that in the best modern business establishments.

6 The equipment should be suitable and sufficient for the purposes and methods of instruction.

7 So far as feasible, such instruction should be given in English, history, civics and other appropriate subjects as will tend to make the pupils self-helpful, intelligent and worthy citizens.

8 All instruction should be so arranged that each period of study prepares for its naturally succeeding periods and efficiently trains for vocational usefulness.

Further consideration to the general topic of courses of study will be given when the distinguishing characteristics of each type of school as classified in the law are separately described.

#### MANNER OF CONDUCTING VOCATIONAL SCHOOLS

The requirement of the law that State-aided vocational schools shall be conducted in a manner approved by the Commissioner of Education is general rather than specific, and may be understood to contemplate his intimate knowledge and supervision of the methods, work and maintained condition of such schools. To aid him in acquiring such information there will need to be frequent official inspection.

The chief aim of State supervision is to prevent the expenditure of local and State money for unsatisfactory schemes. The presumption is that if there is to be a partnership of responsibility and interest there should be from the start a clear understanding between the State and the community. To insure this understanding it is advisable for the locality to seek, previous to taking up the work, tentative approval of methods and means to be employed in the development of vocational instruction.

It is clear that the spirit of the law goes much beyond formal inspection; it undoubtedly contemplates an active cooperation on the part of the State and local authorities to the end that efficient vocational education in five specific fields shall be maintained with the utmost economy and effectiveness. If the school has an organization and a course of study both of which have been conducted in a manner to meet the approval of the Commissioner of Education, the community will be entitled to reimbursement to the extent named in the law. From every standpoint it would appear to be a wise procedure for the locality to seek tentative approval of the methods and means to be employed in the development of vocational instruction in order that the State may assume its share of the partnership and the responsibilities of inaugurating such instruction. In other words, the most effective method will be to procure as far as possible from the State, what may be called "approval in advance" in order that the community may be certain at the outset that the work has at least been started in compliance with the rules and regulations of the Commissioner of Education.

At all suitable times the State holds itself in readiness to assist local communities by advice and supervision in making investigations designed to discover and define local needs of vocational education, in devising plans providing for desirable schools, and in offering suggestions which will assist in maintaining them efficiently. As a result of this cooperation the Commissioner of Education will usually be able to indicate his approval or disapproval of particular proposals of local authorities in advance of the execution of such proposals. Even if approval in advance has been given, however, it still remains for him to approve the actual accomplishment of the vocational instruction. This approval will be given if the school has been organized and conducted in a satisfactory manner and has successfully carried out the course of study approved by him. But the approval can be given only year by year and approval for one year does not necessarily imply approval for the following

years. At successive stages in the process of conducting vocational instruction, the Commissioner of Education will indicate his approval or disapproval and thus encourage or discourage the community from continuing a policy which would be likely to jeopardize official approval and hence the loss of special aid.

#### TYPES OF SCHOOLS WITH THEIR AIMS AND METHODS

The law specifically designates five types of vocational schools, as follows: the general industrial school; trade schools; schools of agriculture, mechanic arts and homemaking; part-time or continuation schools; evening vocational schools. Each type will be considered in some detail.

#### GENERAL INDUSTRIAL SCHOOL

The law defines the general industrial school as being open to pupils who have completed the elementary school course or who have attained the age of 14 years. The law does not define the type of work which it shall undertake. It is assumed, however, that it is to be of the all-day vocational order and that it is designed to give practical training in suitable occupations connected with the fields of industrial or household arts to pupils over 14 years of age who give practically their entire time to a school attendance in which they are fitted for the trades, crafts, and manufacturing pursuits relating to industrial and household activities.

Furthermore the word "general" would seem to imply that the training given was not to be confined to a narrow and highly specialized trade training. The fact that there is mentioned a second type of school — the trade school — reinforces this opinion. Again, it is evidently not the purpose of this type of school to make vocational training incidental or subordinate to further liberal training; otherwise there would have been no occasion to have written it into the Education Law.

The ideals to be reached in this type of school may be summed up as follows: first, the development of a part of the experience, intelligence and skill requisite in a given group of related industries. For back of many groups of trades or factory processes are found certain elements of likeness in the material employed, the tools used and the general character of the product which can be so taught as to give manual skill and industrial intelligence applicable to many industrial vocations. Second, the adaptation of the work of the school to the prevailing industries of the locality. The ex-

periences within the school will grow out of community needs and touch the business of the place in which the child lives. Third, acting as an agency for the proper and wise selection of an occupation leading boys and girls toward the industries with awakened sympathies and ambition for industrial careers with some knowledge of industrial qualities and with some conception of what the industries have to offer them. Fourth, the development of certain broad and social qualities such as interest in work, ideals of workmanship and industrial responsibility.

The methods to be employed are, first, the teaching of the essentials in bookwork; second, teaching applications before theory; third, a definite correlation of subject matter including such instruction in mathematics as will be applied knowledge of immediate value to the pupil in his work and closely connected at every possible point with shop experience and drawing room practice, the drawing being such as will assist the pupil in his shop projects and be closely connected with his shop experience; fourth, the shopwork to be conducted on a basis generally accepted as being common in industrial establishments as distinguished from the ordinary exercise or the manual training method of handling pupils. The shopwork should be carried on as much like real shop practice as the school conditions will permit.

General industrial training may well begin after the ordinary school arts like reading, spelling, writing, drawing, arithmetic, grammar and the rudiments of history and geography are fairly completed and as soon as the muscles are strong enough to handle the lighter tools of industry safely and are sufficiently developed for the acquisition of skill in their use.

A general industrial school for children entering at 13 or 14 years of age should have a course extending from two to four years. The latter period is preferable for two reasons, first, because this length of time is necessary to produce the requisite mental and physical training for a life of progression in industrial efficiency, and second, because it enables the school to attract and hold the pupil when his growing power is greatest and his earning power least. It is highly important that pupils remain in such a school until they are at least 16 years of age owing to the fact that practically no desirable jobs await them before that age.

For the first two years the studies should be general in character, being designed to round out the elementary school instruction, laying the foundation of industrial efficiency and arousing a

set of industrial interests that will demand the work of the next two years for their fulfilment. In other words, general mechanical training the first two years and "specialization" the last two years. This specialization will not come until the pupil is 16 years of age when a more definite preparation for the vocation can be attained either in the system of trades schools which should follow and supplement those general schools or in the definite connection which can be made between the general school and the local apprenticeship systems that may exist in the local factories.

### Suggestive two-year course for boys

SEVENTH YEAR		EIGHTH YEAR	
Subject	Periods a week	Subject	Periods a week
Applied mathematics	5	Applied mathematics	5
Shop drawing	4	Shop drawing	4
English and spelling	5	English and writing	5
Industrial geography	4	Industrial history	4
Elementary industrial science	1	Elementary industrial science	1
Citizenship and hygiene	1	Citizenship and hygiene	1
<sup>1</sup> Elements of		<sup>1</sup> Elements of	
Carpentry		Sheet metal work	
Cabinet making		Plumbing	
Wood turning		Electrical work	
Patternmaking		Machine shopwork	
Molding	20		20
	<u>40</u>		<u>40</u>
	<u><u>40</u></u>		<u><u>40</u></u>

### Suggestive two-year course for girls

#### Seventh year

FIRST HALF		SECOND HALF	
Subjects	Periods a week	Subjects	Periods a week
Applied arithmetic	5	Applied arithmetic	5
English	5	English	5
Industrial geography and textiles	4	Industrial geography and textiles	4
Spelling and writing	1	Spelling and writing	1
Home furnishing and decoration	2	Home furnishing and decoration	2
Costume design	2	Millinery design	2
Music	1	Music	1
Physical training	1	Physical training	1
Citizenship and hygiene	1	Citizenship and hygiene	1
Household science	2	Household science	2
Plain sewing	8	Millinery	8
Cooking	8	Cooking	8
	<u>40</u>		<u>40</u>
	<u><u>40</u></u>		<u><u>40</u></u>

<sup>1</sup> Other groups which are fundamental to a group of trades may be substituted. For example, elements of printing and bookbinding, elements of the leather industry, elements of the clothing industry and the elements of the clay products industry.

*Eighth year*

<i>Subjects</i>	<i>Periods a week</i>	<i>Subjects</i>	<i>Periods a week</i>
Applied arithmetic	5	Bookkeeping	5
English	5	English	5
History	4	History	4
Spelling and writing	1	Spelling and writing	1
Home furnishing and decoration	2	Home furnishing and decoration	2
Costume design	2	Millinery design	2
Music	1	Music	1
Physical training	1	Physical training	1
Home nursing	1	Household economics	1
Household science	2	Household science	2
Dressmaking	8	Millinery	8
Cooking	8	Cooking	8
	<u><u>40</u></u>		<u><u>40</u></u>

For the last two years the studies should be more specific in character. The first two years should have developed an interest in industrial subjects, and by this time the pupil ought to have determined for what line of mechanical work he was best adapted and should then fit himself for a trade pursuit. The general aim of the last two years should be to make specific applications of subject matter to the industries of the locality and its vicinity. The boy might spend the major part of his school time of the last two years in the shopwork. This type of work is further elaborated under the head of trade schools.

That the subject matter will vary according to the locality has already been made clear. The shopwork should result in products which are usable and, under favorable conditions, salable. Common sense will determine what is feasible and fair to all interests concerned. Pedagogical principles demand that the boys and girls attending this type of school shall deal with whole products, reproducing commercial conditions so that an abiding appreciation of rate of work may enter into the question of production. The shop school at Rochester, in common with other schools, has been successfully working on this basis. Following is a statement of the productive work of the pupils in this school for one year.

**Rochester Shop School**

<i>a Cabinet department</i>	(97 jobs completed)
40 flag standards	102 drawing tables
24 flat top desks	12 wiring boards
20 manual training benches	10 chairs
64 T squares	6 bulletin boards
12 saw horses	Stock for aeroplanes
42 bench tops	Stock for manual training department
60 bench stops	
Preparing 1500 feet of stock for carpentry department	1 music stand 1 directors' table

*a Cabinet department (Concluded)*

6 bookcases	18 sewing boxes
2 filing cabinets	500 cord adjusters
10 work tables	1 battery shelf

*b Carpentry department (74 jobs completed)*

4 settees built for grammar school	Tool house on athletic field of West High School
2000 square feet of flooring laid	15 doors in R. S. S., No. 18 school and No. 8 school
3000 square feet of partitions built	1 key board
8 transoms put in	1 bulletin board
16 air diverters built	12 racks for girls gymnasium at West High School
16 cupboards built	
5 wiring boards constructed	

*c Electrical department (158 jobs completed)*

46 jobs repairing fire gongs in schools	Connecting stereopticons
27 jobs repairing annunciator systems	Installing desk lamps
Installing intercommunicating telephone system	Installing footlights
Installing buzzers	Installing motors
16 jobs installing lighting systems	Installing 3600 feet no. 12 wire in R. S. S.
	Installing 1600 feet no. 16 wire in R. S. S.
	Installing 276 lamps in R. S. S.

*d Plumbing department (24 jobs completed)*

13 schools supplied with bubbler fountains	Installing 5 sinks in R. S. S.
5 fountains repaired	Gas pipe run for solder furnaces
4 toilets repaired	Installation of all water pipes and waste pipes in R. S. S.
Installing 10 toilets in R. S. S.	

*e Printing department (265 jobs completed)*

31 jobs printing envelops (42,000 impressions)	5 jobs recipes (150 sets each) .
17 jobs letter heads (31,000)	3 songs (3800)
7 jobs note heads (4000)	8 circular letters (10,500)
9 jobs booklets (95,000)	5 post cards (5000)
33 jobs cards (86,100)	118 miscellaneous
29 jobs small record sheets (130,000)	

The most effective method of approach in the bookwork will be along lines of its application to industrial problems and with comparatively little study of pure forms. Mathematics, science, drawing, and to a slight extent even English and history, should grow out of, and manifest its relations to, the concrete shopwork.

When the program of vocational studies has been determined it may be possible to introduce others that are frankly nonvocational, such as music and art. Caution must be used in this matter. It is possible to make a social and industrial citizen, to give vocational intelligence and vocational ideals by studying evolution of industry, industrial hygiene, rates of compensation, relations between employers and employees. Formal and detailed work in the so-called "cultural" subjects does not necessarily make for citizenship. In the Albany vocational school stress is laid upon the development

of transportation and communication, the establishment and growth of cities together with their new code of civic life involved, the changes brought about by the concentration of capital and labor in production, and the civic duties and privileges of the modern industrial citizen.

#### METHODS OF TEACHING CORRELATED SUBJECTS<sup>1</sup>

The first step to be taken in the solution of the problem of teaching correlated subjects is to change the attitude of the pupil toward bookwork. This is done by treating English, history and geography so that they have purpose and understanding in the pupil's consciousness and make his activities have a meaning to himself.

The English, which consists of writing, reading, spelling and composition, and the history and geography are not taught as things by themselves but are used as a means of giving purpose to the vocation and affording the pupil a consciousness of the world in which he has to live and serve. To illustrate: our girls begin the work in sewing by hemming by hand some towels and dish cloths for use in the kitchen. They have never sewed a napery hem before. Some have never done any hemming before. The towels and dish cloths are passed to each member of the class and some questions are raised as to quality and texture of the material and without delay the instructions for measuring and turning up and sewing the hem are given and the sewing has begun. The work is in progress only a short time when the pupils pass to the classroom for book studies.

This sewing lesson is the basis for spelling, composition, geography, history and arithmetic. Investigation of the source of the material of which the towel is made leads to a study of the production, preparation for and manufacture of flax into linen; to the location of the flax-producing countries of the world; to other uses of flax and linen; to the evolution of the linen industry; to a study of other kinds of toweling, their names, cost, use, superiority or inferiority of one kind over another and some common tests of quality.

Samples of toweling are collected and for this collection letters are written to dry goods firms asking for samples. This necessitates a study of the proper way to write a business letter, and the teacher should develop and drill on the form, wording and punctuation of the conventional letter. The pupils write to Boston for a little book called "From Wool to Cloth"; to a firm in Cleveland for a

<sup>1</sup> Extract from paper read by Rose I. Hughes at Albany Vocational Conference December 6, 1913.

booklet, "Approved Methods of Home Laundering." They compare and contrast the essential qualities of a business letter—brevity, clearness, neatness and courtesy--with those of the social or friendly letter. A few notes are made on the parts and forms of business letters.

Meanwhile the work in sewing has been going on. Towels have been finished and underwear started. In the millinery class, buckram, tarlatan and cotton-covered wires are in use. So while the interest is keen and the trade materials new, the textile work is completed, taking in order cotton, wool, silk and the other commercial fibers. We have an excellent opportunity to study the processes in the manufacture of wool into cloth in that the owner of a woolen mill nearby offers us, annually, the freedom of his mill and the attention of two guides who not only explain the processes and machines but wait until the children jot down notes. . . .

On entering the shop the boys take inventory, handle and examine the tools, learn their names and, in a general way, their uses. They listen to a lecture on the structure and use of the hammer, and learn how to hold and swing it. Altogether they have a blissful morning which is all too short. But alas! the thoughts of the old school work come with the afternoon and with hands in pockets and shuffling feet they saunter to the room of desks and books.

Here no word of geography or formal study is spoken but paper is passed and the pupils are asked to write a list of the tools on their bench. Few can spell all the names and as they request it the words are written on the board and carefully copied, then visualized and taken home with the direction that the list will be made again the next day when every one will know how to spell them.

Then comes the question as to which of those tools was first used by man and the knowledge gained from the morning lecture is given out freely. Some little books are quite casually passed around. They are not school books, but manufacturers' advertisements. No direction is given as the boys turn over page after page to find that there is nothing in the book but information about hammers. . . . Then follows the story of the biography of David Maydole, a wonderful story of what principle and high ideals of workmanship will do in the business career of a man. . . . Next comes the study of the iron and steel industry of the world, the different forms of iron—ore, pig, cast, wrought, steel; the processes and manufacture of iron and steel; the locations of

this industry in the world; the evolution of the iron industry; use of iron in colonial days, in postrevolutionary days and today; the influence of the production of iron and steel on the development, progress and power of a country; the wonderful effect of the production of steel during the last fifty years. Lantern slides on this industry are used . . . In this connection the pupils read of the fortunes and misfortunes of Henry Bessemer. This is English, history and geography radiating from the shop work as a center. . . .

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The homemaking department is most closely related to the book-work. The food products of the world are studied with reference to their geographical, historical, economic, chemical and domestic relations. . . . Geographical, because we study the production of the article and the natural conditions which control it—location, climate etc. . . . Historical and economic, because we consider the human, industrial and economic conditions affecting production, manufacture, transportation and consumption of food. . . . Chemical, because we consider the food elements contained in the articles and estimate their effect on the body. . . . Domestic, because we study proper ways of preserving these foods with regard to nutritive value and appetizing service.

#### TRADE SCHOOLS

The law defines the trade school as being open to pupils who have attained the age of sixteen and have completed either the elementary school course or a course in the aforementioned general industrial school or who have met such other requirements as the local authorities may prescribe. Again the law does not define the type of work which shall be done in the trade school but it is reasonable to assume that its vocational instruction is to be specific rather than general in its character and that it is to build upon and grow out of the vocational instruction given in the general type of school. Furthermore, the statement that the local school authorities may prescribe other entrance requirements has considerable significance. It would appear that the following definite principles involved in the organization, courses of study and manner of conducting instruction are appropriate to trade schools. First, pupils enter these schools with a well-defined vocational purpose. Either the period of trying out is finished or their vocational bent is clear in their own minds or economic pressure forces a vocational choice.

Second, they are there to learn a specific trade to the full extent that is possible in any school plan. Third, the school practically abandons any specific instruction in the so-called liberal studies and all the culture which the pupil receives comes directly from his trade instruction. Fourth, it is, however, taken for granted that there can never be genuine trade instruction without some accompaniment of the applications to the trades, practice of mathematics, science and economics. Fifth, each trade taught in the trade school forms a school unit in itself. Correlation of subject matter relating to each trade is developed by the teacher of that trade. Sixth, the trade teacher must be alive to the human needs of the vocation. He must know about trade unionism, the effect of hours and wages upon prices, industrial betterment laws and regulations, something of the history of the trade, and a score of other points which have made him through reading and observation, an intelligent, thoughtful, progressive workman and instructor.

A glance at the following topics in plumbing as given in a two-year course of study in the Saunders Trades School at Yonkers will make clear how consciously as well as unconsciously the boy taking this course may absorb some of the disciplinary and useful studies of mathematics and science; how he may learn to read and make working drawings; how he may be provided with the tools of spelling, writing, composition; how he may touch the socializing studies of geography and citizenship.

WEEK  
NO.

*First year*

- 1, 2 Inspection of shop and working equipment, including names and uses of the various tools and plumbing materials, such as vent, soil, waste, water and gas fittings; drain, soil, waste, and water pipe; valves, stopcocks, ball cocks, plunger valves, their construction and use.
- 3, 4 Cast-iron soil pipe, where and how used; sizes and weight. Elementary work in yarning oakum, pouring lead and calking joints; cutting soil pipe.
- 5 Preparing soldering irons for use; soldering iron practice.
- 6-8 Cutting and making wiping cloths; making soil, its use; preparing lead pipe for wiping.
- 9 Making solder; composition; proportions for wiping solder; melting points and result of overheating.
- 10 Restoring and testing impure solder; use of grease previous to wiping.
- 11, 12 Treatment of joints to give mottled appearance; length and width of wiped joints; wiping joints at bench.
- 13 Filing and tinning brass stopcocks, ferrules, solder nipples.
- 14, 15 Threading and cutting nipples of all sizes on wrought-iron pipe.
- 16 Laying sewer pipe, properly cementing connections; pitch capacity; sewer branches.
- 17 The numerous kinds of traps: size, general description and where used; trap seal, how broken; disadvantages of trap seals in traps.

WEEK  
NO.

- 18, 19 First work in installing hot water supply for domestic use.
- 20, 21 Laying out gas-fitting work; cutting and threading pipe.
- 22, 23 Calking and testing cellar drains and soil stacks.
- 24, 25 Back venting; why traps are back vented and how constructed; main, branch, crown, circuit, loop, local and continuous venting; soil and waste venting.
- 26-28 Distinction between soil and waste for drainage; roughing; house drain, house sewer; cleaning of waste pipe; pitch and sizes of waste pipe and house drain; waste vents.
- 29 The Durham system, its advantages and disadvantages demonstrated.
- 30 Fittings prohibited on the drainage system; where clean outs are used on same; methods of supporting overhead piping.
- 31, 32 Main house trap; purpose of fresh-air connection; setting of main trap; clean outs on same.
- 33 Rain leader traps; outside and inside leaders.
- 34, 35 Soldering sheet lead, tin, and galvanized iron.
- 36, 37 Siphonage demonstrated; siphon closets, tanks, lavatories, sewage siphon and urinals; their action and construction.
- 38 The siphonage of traps and boilers, and how prevented; lead burning; wiping joints at bench continued.
- 39 Review.
- 40 Examination.

*Second year*

- 1-4 The different plumbing fixtures; installing wrought-iron sink lines with continuous vent, crown vent, and improper vent, all work tested and improper work corrected.
- 5-8 Roughing in and setting of fixtures, including connecting of stoves, heaters, boilers, closets, tubs, sinks, and lavatories, using lead, nickel-plated and iron pipe.
- 9-12 Gas fitting; working from plans; connecting auxiliary water heater and Humphrey automatic instantaneous water heater; demonstration and explanation.
- 13, 14 Wiping round joints at bench continued.
- 15-17 Hot and cold water supply and circulation; sources of water supply; boiler and range work; connecting boiler, requirements for proper action of same; cause of explosion of water fronts; arrangement of stopcocks and valves; sizes of service pipe and branches.
- 18 Pipe bending with spring and sand; making offsets and bends; working sheet lead; making P. & S. straps.
- 19-21 Wiping upright, vertical, and horizontal round and branch joints on all sizes of pipe; wiping wall and floor flange joints; joint wiping continued under actual working conditions.
- 22 Making connections for refrigerators.
- 23 Advantages and objections to the different types of water-closets and flush tanks; principles under which they are operated; explained.
- 24 Local venting and ventilation of toilet rooms.
- 25 Methods and purpose of testing new and old work.
- 26, 27 Wiping in service pipe under direct pressure; freezing pipe to wipe joints.
- 28 Roughing in for comfort stations and school work.
- 29 Advanced lead burning; lining tanks for chemical purposes.
- 30 Making repairs of all kinds on tanks, closets, faucets, valves, cocks, and so forth.
- 31 Calculation of tank and boiler capacities; free-hand drawing.
- 32 Trimming rules and regulations of Yonkers.
- 33 Action in working from plans and specifications.

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Les the installation of plumbing for a one family dwelling condition.

One-half day each week is devoted to inspection of plumbing in buildings in course of construction in this city.

The needs and work of the practical plumber are given consideration in all particulars.

All work is done from blue prints and drawings when practicable.

Note.— During the two years 1200 hours are devoted to shopwork. In addition, 1200 hours are devoted to a study of English, spelling, writing, composition, geography, citizenship, arithmetic and sketching.

There is more "education" in such a course than one is prepared to see at first glance. The boy must know tables of specific gravities, of weights per linear foot, of different materials, of cubical contents of different vessels, of melting points of different solids. He must know how to estimate the cost of installation of plumbing fixtures. He must see the workings of the laws of mechanics and flowing liquids in the various types of fixtures. It should be stated, however, that the degree of the "education" attained by the pupil rests almost entirely on the personal as well as the trade qualifications of the instructor. He must have the true spirit of craftsmanship. He may not be learned, as the saying is, but he must have a clean character, believe in honest work, know something of the economic questions which enter into his trade, read his weekly trade paper, be able to apply those book and technical studies which have direct application to his craft, and have the ability to inspire his pupils by personal example and instruction to do the best for themselves.

#### NEED FOR SCHOOLS OF CRAFTSMANSHIP

After all our theorizing over and agitating for trade or special technical institutes of secondary order, we have very little to show. The hand industries are engulfed by the machine. The industrial revolution has forged far ahead of our organized social life and our organized education. The traditions of craftsmanship were preserved in the old industrial system; they were handed down from master to apprentice and journeyman. The old system as a teaching system has disappeared.

The way of salvation lies through the schools. It does not lie in the trades. We now see clearly that it is the business of trade to produce, not to educate; it is the main business of the school to educate, not to produce.

While Europe succumbed to the industrial revolution in spite of the tremendous defense of her traditions of craftsmanship, she reacted quickly. She now trains students to be practical craftsmasters in the art industries; in the textile industries as designers, lacemakers, costume delineators; in the graphic arts as designers,

decorators, painters, illustrators, engravers, lithographers, etchers, color printers, photographers, bookbinders; in the plastic arts as designers, molders, sculptors, stonecarvers, decorative tilemakers; in the wood industries as designers, cabinetmakers, woodcarvers; in the earth product industries as designers, potters, workers in stained glass and enamel; in the metal industries as craftworkers in hammered and forged metal, silversmiths; in the building and furnishing arts as interior designers and decorators. Infinite variety of callings, infinite variety of schools and courses—springs of vast, fresh streams of vivifying power entering into industry and into life.

We are woefully lacking; not a textile school in the State, not a school for shoeworkers, not a school of fermentology, not a school for paper makers, not a school for glassworkers, not a public art school or school for jewelers or bookbinders or lithographers. We continue to waste and squander the wealth of artistic taste and craftsmanship inherent in our people and instinctive in many of our immigrants. We continue the making of mechanically-minded men through highly specialized labor. We ignore the worker for the system. We build for the immediate present instead of for that future, sure to come, when craftsmanship in America will be in direct competition with the human products of European schools.

A new course of instruction recently put into operation in Pratt Institute is well worth mentioning as an illustration of what other schools might do to bring together the school and the factory. A school of instruction in the art of tanning and finishing leather has been opened at the suggestion of the National Association of Tanners. The courses offered are (*a*) a one-year trade course in tanning, intended for young men with or without experience in tannery work and designed to give a systematic training in the art of tanning and finishing different kinds of leather, and to supply a broader knowledge of principles involved in these processes than can be obtained under ordinary conditions of commercial manufacture, and (*b*) a one-year technical course in applied leather chemistry, offering to postgraduate students in chemistry opportunity for specialized study in the principles and practice of tanning and in the chemistry of leather under conditions that approximate closely to those obtaining in modern tanneries.

The course of study is not only advanced and thorough on the chemical side, but is conducted in close relation to the practical requirements of the tannery. Instruction is given in the manu-

facture of leather in all its branches, and practice is afforded in the actual tanning and finishing of leather under conditions very similar to those in modern establishments. Special instruction is provided in the chemistry of leather and in other closely related branches of industrial and technical chemistry, such as dyeing and the preparation and testing of dyes, soap making, the manufacture of chemicals, extracts, leaches etc., entering into tanning operations.

A study is made also of the designs of tanneries and their equipment, and the problems in the supply of power, heat and steam and the handling of materials are worked out in detail. In the mechanical and electrical laboratories special attention is given to the subject of steam and electrical power machinery and the transmission and application of power. In addition to the regular work of the course, a series of lectures is given each year by experts and specialists in various departments of the tanning industry on technical and economic problems relating to leather manufacture.

The richest State in the Union, the leading State in manufacturing should through its public education be able to master the machine and make it serve the spirit of life and joy and progress in all lines of trade and craftsmanship.

#### SCHOOLS OF AGRICULTURE, MECHANIC ARTS AND HOME-MAKING

The success of the schools of agriculture operating under the Education Law of 1910 providing for the establishment of such schools indicates that the basic principles of this law are sound. In brief they are as follows: first, these schools are universal in the sense that any school district may establish such a school; second, such a school is established only when public sentiment as expressed by a majority vote favors it; third, although the State aids in the support of the school, the local community must pay its share; fourth, a trained teacher of agriculture must give his whole time to the work; fifth, the instruction is to be suited to the local community.

The amendments of 1913 do not change these fundamentals but give to them increased effectiveness. The reduction of the required number of pupils from twenty-five to fifteen enables a school to start the work without overcrowding the classes, encourages the smaller schools to undertake this instruction and gives opportunity for the schools to make the work really vocational without fear of reducing the enrolled number below the requirement. This last point is

especially significant as a great effort is being made to have pupils who wish to study agriculture give enough time to it and continue its study for a period sufficient to make it worth while.

The change from a fixed apportionment for each teacher to a fractional apportionment based on the salaries of the teachers encourages the local authorities to secure better teachers and once having secured them, to grant reasonable yearly increases in salary.

The provision for an additional apportionment to each school which contracts with the teacher for an entire year makes possible an effective teaching plan. In these small schools many of the pupils return home each night and those who board in the village return home each Friday night. The home farms are used for demonstrations and practicums. The school furnishes an opportunity for a study of the science underlying the home work and related to it. Each pupil then has a productive project under way at home while in school he is studying the science underlying that project. It is expected that the parents, the boy and the teacher will cooperate in this project, the parents and the teacher each contributing to the educational possibilities of the boy and the boy taking advantage of these possibilities. Undoubtedly we have in some instances been too hasty in assuming that certain home opportunities for education have ceased to exist. During the spring and summer especially, there is splendid opportunity for the farm boy to make a real connection between the home and the school. It is quite evident then that the teacher should make frequent visits to the homes of the pupils in order that his advice and counsel may be available. The teacher of agriculture who spends the summer in close contact with the farm homes of the community goes back to the schoolroom in the fall with a much better idea of what and how to teach than he had previous to such an experience. During the summer the teacher has an opportunity to gather material of various kinds for his winter's work in the schoolroom. In passing about through the country he dispels some of the misconceptions concerning school agriculture and last but not least, he puts his knowledge and skill at the disposal of the community.

There have been varying and various ideas concerning the acquirement and use of land by schools of agriculture. Some states have included in the legislation concerning state aid, a stipulation that a certain minimum acreage of land be cultivated as a school farm. The consensus of opinion now seems to favor the use of home land as a first consideration and the use of land in con-

nnection with the school as a matter to be determined by local conditions. In this State, there are all gradations from no land to a thirty-seven acre farm. Other activities maintained in connection with the school are as variable. There are some localities in which the laboratory and classroom represent the school plant. One school has a well-equipped poultry outfit and another runs a local creamery with a monthly output of 2000 pounds of butter. There are many instances of community benefit arising from the local school of agriculture. All these movements seem to justify the policy of allowing these schools to develop along the line of community needs.

Although there has been a steady increase in the number of schools teaching agriculture, the number is still small when compared to the number of secondary schools which might be classed as rural. The main obstacle is, of course, the expense. Notwithstanding the fact that State aid enables a school to employ a teacher of agriculture at a cost to the district of less than that of any other teacher, there is still necessity of retaining all the other teachers in order to maintain the academic standing of the school. The greater number of the pupils who study agriculture come from without a district which maintains a high school. The State pays a tuition of twenty dollars a year for each of these nonresident pupils while the cost to the district is between forty-five and fifty dollars when calculated on a basis of the minimum of fifteen pupils. It is true that these villages are for the most part dependent upon the surrounding community for their existence, but it is sometimes difficult to convince taxpayers of the immediate need of recognizing this fact.

Thus far the development of this work has been in the high school field. There are in the State more than two hundred schools maintaining academic departments of junior, middle or senior grade. Nearly all these schools are well situated for agriculture. The majority of the pupils live on farms. The law provides for state aid for agriculture teaching in these schools. Provision has been made under the title of intermediate schools of agriculture, mechanic arts and homemaking, for the reorganization of these secondary schools offering less than four years of academic work. Such a reorganization would mean an increased teaching efficiency for the present expenditure on the part of the district. No doubt the development of this type of school will be rapid once one or two make a successful start.

The lack of trained teachers is one of the great obstacles in the way of more rapid progress. The present requirement of two

years of special preparation should be raised to four years. Our State college of agriculture is now prepared to give specific attention to the problem of preparing teachers for this work. Owing to the nature and diversity of the work, the contact with practical farmers and the project form of instruction, these teachers need a broad and thorough training.

Last year there were but seven special teachers of home-making employed in schools of agriculture, mechanic arts and home-making in this State. This year there are fourteen such teachers employed. The girls as well as the boys should have their instruction thoroughly organized and connected with the home activities. There is little doubt but that the work for the girls in these schools should be distinctly along homemaking rather than industrial lines.

The specialist in agricultural education has visited the agricultural schools of some other states the past year. The following points were most forcibly brought to his attention in summarizing the efforts of other states along the line of vocational education and in comparing these efforts with those of New York State.

1 Our State needs better trained teachers of agriculture. In the agricultural college of each state visited there is a well-organized department of agricultural education which has as its chief aim, the preparation of teachers of agriculture for secondary schools. In each of these states which give state aid for agriculture in the public schools, over 90 per cent of the teachers of agriculture are agricultural college graduates with special preparation for teaching. At the New York State College of Agriculture there has heretofore been no provision for preparing teachers. In New York State the per cent of teachers of agriculture who are agricultural college graduates with special preparation for teaching is less than 20.

2 Agricultural instruction in high schools should be recognized by the colleges. In each of the state universities of the five states visited, four units of vocational work are accepted for entrance to any department. At present, Syracuse University is the only institution of college grade in New York State that will accept four units of vocational work for entrance.

3 Efforts to better community conditions on the part of different State agencies should more closely cooperate. This cooperation between the work of the college of agriculture, the county agricultural agent and the local teacher of agriculture is noticeable in the Middle West. This is probably due to several causes, among which are (a)

the county agents are answerable to the college of agriculture; (*b*) the college of agriculture has a department specially interested in the field of secondary education; (*c*) this department is usually closely connected with the extension department of the college. In New York State the county agents are answerable to the Commissioner of Agriculture and to the state agent at State Agricultural College and this college has heretofore had no department especially interested in secondary school work.

4 It is not wise to require a tract of land for agricultural teaching in connection with every state-aided school, for the following reasons:

(*a*) it can not be made financially profitable and therefore can not be justified as a demonstration; (*b*) the secondary school can not hope to carry on research work of experiment station character; (*c*) the pupils have better opportunity for practice at home; (*d*) the only justification possible is the raising of class demonstration and laboratory material not otherwise obtainable or as a laboratory in itself. This would mean a very small plot.

5 Schools in other states provide, as a rule, better rooms and equipment for agricultural teaching.

6 It might be well to consider the question of giving state aid, less than now given to vocational schools, for general education as expressed in the activities of the vocations, that is, for manual training, for academic agriculture, for homemaking for such schools in the open country as can not meet the necessarily rigid requirements of the present law regarding state-aided vocational instruction. In the West, apparently as a result of an attempt to extend state-aided agricultural teaching to many of the smaller communities, much of the agriculture originally given on a vocational basis has been modified and reduced from the vocational plane to an academic level.

The following description of the progress of agricultural teaching is given as an illustration of the point of view taken by the community toward this work and of the ups and downs incident to every new line of school work before its value is finally established in the minds of the taxpayers and school people.

**Agriculture in the Hancock High School.** In August 1911 at the annual school meeting of district 20, town of Hancock, Delaware county, it was voted to establish a course in vocational agriculture in the Hancock High School. The village of Hancock, with a population of 1350, is situated at the fork of the Delaware

river where the east and west branches unite to form the main stream. Since it is situated near the New York and Pennsylvania state line, the high school draws a few pupils from the latter state. The topography of the surrounding country is rough and mountainous. The valleys are narrow and steep. The creek beds extending down from the hills to the Delaware river have narrow valleys, the fertility of which is rather below the average. Generally, however, each run has near its head a small district of rolling land well elevated and devoted largely to dairying. For a generation the principal industries of the locality were lumbering, bluestone quarrying and railroading. Since the timber has been cut off, farming has received more attention but no grange or other farmers' organization existed in the vicinity prior to 1911.

Charles A. Taylor was engaged at a salary of \$950 for ten months. He is a graduate of a high school, the Cortland Normal School and has studied one year and two summers at Cornell University in the College of Agriculture. His farm experience has made him thoroughly familiar with the practical side of farming. He was a farm-reared boy and has himself run a farm.

The teacher canvassed the adjoining districts for agricultural pupils for a period of ten days before school began.

*Extension work.* First year. During the first year of the course, two farmers' meetings were held in the spring. The first was an afternoon session, February 22, 1912. Professor Krum of Cornell University spoke on "Poultry Keeping," and Professor L. S. Hawkins, director of agriculture at the Cortland Normal School, spoke on "Fruit Growing." About forty were present, of whom approximately one-half were pupils. The second meeting was an evening meeting when a representative of the State Forestry Department delivered a stereopticon lecture on the "Reforestation of Idle Lands." The attendance was large but consisted mostly of residents of the village.

Considerable other extension work was planned but could not be carried out because the teacher was overloaded with science work. A few visits were made to farms for the purpose of inspecting soil, stock and general agricultural conditions. The important outcome of these visitations was probably the close acquaintance and friendship formed with the farmers visited. Where possible the instructor spent a day and a night at the farm. No suitable land or equipment was available for demonstration work but one cooperative spraying experiment was inaugurated and was

successful. One boy successfully worked out a home project on poultry raising.

Second year. The agricultural teacher was again heavily loaded with classroom work, but was able to get out more and stimulated the formation of a farmers' club of eighteen adult members in a near-by locality. As a result of his milk-testing demonstrations before that club, one dairyman was known to dispose of about one-third of his dairy because it was shown that they failed to pay for their keep. The school has the hearty support of the farmers of that vicinity.

During the spring of the second year there seemed to be a feeling among some of the retired taxpayers of the village, who were interested especially in the matter of tax rate, that the agricultural course was rather more expensive than conditions warranted. To meet this situation a mass meeting was called for the purpose of allowing all a chance for free expression regarding the advisability of continuing the course. A very unexpected sentiment in favor of the course manifested itself among the farmers and business men present. Several enthusiastic talks were given, which decidedly favored the continuance of the school. Farmers drove as far as seven miles in order to be present and give favorable expression for the course. No word of opposition was spoken. During the meeting a contribution was suggested to raise money for a school spray pump to be used in the community. Forty dollars was pledged by the farmers and business men present. One citizen offered prizes for the ten best ears of corn to be grown by a boy in school. Similar prizes were offered for the best exhibit of potatoes and the largest pumpkin.

The sprayer purchased was a fine double-action machine carrying a twenty-five foot leader. Over one hundred trees have been sprayed this fall, principally for oyster shell scale, which is very bad in this section.

A winter course was offered to those young men who were unable to come to the school for the entire year.

A Saturday course in agriculture was started in the fall of 1912 for teachers in the neighboring district schools and meetings were held once in three weeks at the school during the fall term. This course proved an excellent means of enlisting the good will of the farmers in outlying districts, some of whom occasionally attended the meetings themselves.

Third year. With the opening of the school in the fall of 1913, all science work was left in the hands of the teachers of science

and time was afforded for more community work by the teacher of agriculture. The number of pupils enrolled in strictly vocational courses greatly increased and much interest was shown in all phases of the agricultural work. Requests came early in the fall for several meetings in outlying districts where the agricultural teacher should speak on fruit growing, feeds and feeding, care of farm animals, etc.

An all-day farmers' meeting was held October 25th. The forenoon session was given up to fruit growing, the agricultural teacher being the speaker. The afternoon session was conducted by Professor Hopper of Cornell who spoke on dairying. About sixty were present, mostly representative farmers from the localities around Hancock. Some came eleven miles to attend the meeting. The expenses of the meeting were met by contributions from the farmers.

The school spray pump has been actively working on dormant spraying from the time the leaves fell until the winter set in. Many more persons than could be accommodated desired to co-operate in spraying experiments. The owners of the orchards convey the pump, do the work and furnish the material. The agricultural teacher directs the work and supervises it. No charge is made for the use of the sprayer or the time of the agricultural teacher, but each person using the sprayer is asked to make some contribution for keeping the sprayer in repair and providing for further cooperative work.

For illustration: Augustus Reyen, six miles from Hancock, has an orchard of about forty trees. These trees were badly infested with oyster shell scale. Mr Taylor, the agricultural teacher, spent a Saturday with Mr Reyen and thoroughly sprayed all his apple trees except a very few which neglect had placed beyond recovery. Mr Reyen will spray for codling moth, bud moth, etc., in the spring. Several neighbors appeared during the day, witnessed the operation, showed evident interest and inquired the cost etc. and two said that they wished to spray in the spring. Each has a good sized orchard. Two weeks later Mr Reyen sent down details of his available feeds and requested the teacher of agriculture to fix him up a balanced ration for his cows. The community in which Mr Reyen lives stands ready to support the course in agriculture in the high school.

About sixty pupils will work out home projects this summer in this locality. They will be along the lines of fruit growing, farm crops, poultry keeping, etc. One lad will keep a set of agricultural

accounts for his father's farms. They total 700 acres with two large dairies. His bookkeeping will have the close supervision of the agricultural department of the school. One girl with plenty of physical strength will thoroughly renovate her father's orchard of about thirty trees. Her work will include pruning, grafting, spraying and soil treatment. Another girl will keep two pens of chickens under different rations, while a neighbor's boy will keep a large flock for profit and will keep careful accounts.

The board of education at Hancock is now fully in sympathy with the agricultural movement. It has become convinced that the work is a good thing and that the course will remain in this school permanently. The board is fitting up a new room for the agricultural department and will purchase about \$150 worth of additional equipment which will put the course on an excellent foundation.

*Class materials.* There are three principal sources of materials for class use: first, that which is gathered by the agricultural teacher in his various visits among the farmers; second, that which is brought in by the pupils, principally at the request of the teacher, and which includes a good supply of curios, unknown plants, insects, diseases etc.; third, that which is sent in by the farmers, who furnish materials very freely when requested to do so. These include milk samples, corn, potatoes, apples etc. for various purposes. Machinery, chemicals, and similar materials kept by the local stores are held available to the classes, as are the barns, fields and stock in the locality.

#### PART-TIME OR CONTINUATION SCHOOLS

The law provides for state-aided part-time or continuation schools in which instruction is given in the trades and in industrial, agriculture and homemaking subjects, and which are open to pupils over 14 years of age who are regularly and lawfully employed during a part of the day in any useful employment or service. It states that the subjects must be supplementary to the practical work carried on in such employment or service. This very significant and important amendment to the Education Law of 1910 was passed during the last session of the Legislature. It is directly related to the following amendment to the compulsory attendance law which was passed at the same time:

When the board of education in a city or district shall have established part-time and continuation schools or courses of instruction for the education of young persons between 14 and 16 years of age who are regularly

employed in such city or district, said board of education may require the attendance in such schools or on such courses of instruction of any young person in such a city or district who is in possession of an employment certificate duly issued under the provisions of the labor law, who has not completed such courses of study as are required for graduation from the elementary public schools of such city or district, who does not hold either a certificate of graduation from the public elementary school or a pre-academic certificate of the completion of the elementary course issued by the Education Department, and who is not otherwise receiving instruction approved by the board of education as equivalent to that provided for in the schools and courses of instruction established under the provisions of this act. The required attendance provided for in this paragraph shall be for a total of not less than 36 weeks per year, at the rate of not less than 4 and not more than 8 hours per week, and shall be between the hours of 8 o'clock in the morning and 5 o'clock in the afternoon of any working day or days.

3. The children attending such part-time or continuation schools as required in paragraph 2 of this section shall be exempt from the attendance on evening schools required in paragraph 1 of this section.

As a matter of fact, the second amendment is the more important of the two in that it opens the way for a great educational reform by providing for the exercise of local option by educational authorities in all cities and districts. The authorities may elect whether they will set up part-time and continuation schools and classes and will require the attendance of permit children upon such classes or whether they will continue the present policy of requiring, in cities of the first class, attendance upon evening schools of such groups of children.

The significance of these amendments is not fully appreciated unless one has a rather clear idea of the hardship which has heretofore been imposed upon immature youths who were required to attend evening schools. Under the old law, employed boys, between 14 and 16 years of age in the cities of New York and Buffalo who had not met certain elementary school requirements, which are described in section 622 of article 23 of chapter 140 of the Laws of 1910, were required to attend public evening schools six hours a week for a period of sixteen weeks. The amendment opened the way for the educational authorities in all cities and districts to avail themselves of the option of gradually establishing part-time and continuation schools or courses of instruction and of requiring the attendance of all permit children between 14 and 16 as fully described in the amendment. By this means attendance upon these part-time and continuation classes for a period of not less than four and not more than eight hours a week for forty weeks a year is made a full and satisfactory substitute for the attendance upon evening school now required from permit boys in New York City and Buffalo.

The experiences of New York City and Buffalo showed conclusively that the former law requiring evening school attendance of permit boys (section 622) could not be satisfactorily enforced. The attendance officers in these cities have been more than occupied with the work of the day schools and a huge force of additional officers would be required to enforce the statute properly. The seriousness of the situation is shown by the fact that there should have been 22,000 permit boys between 14 and 16 in the compulsory evening classes in New York City for the school year 1911-12. There were exactly 7085 enrolled, many of whom gave less than the attendance required by law. In the Twelfth Annual Report of the City Superintendent of Schools of New York it is stated that "It has been found that, in spite of the best efforts on the part of the attendance officers, it is very difficult, and in many cases impossible, to keep these boys at evening school."

Physicians, labor organizations, social workers, and educators are agreed that the attendance upon the evening schools of immature children under 16 years of age after a long day's labor, usually from eight to nine hours, injures them physically out of all proportion to any educational benefit they might receive and actually shortens at the upper end of their lives, the period of working efficiency. John M. O'Hanlon, editor of the Legislative News, the official journal of the New York State Federation of Labor, said in a recent address, "The present system of night schools for child workers is a hateful outgrowth of the employment of child labor."

The compulsory attendance of permit children on evening classes can not be justified from either the educational, social, or economic standpoint. Fatigued mentally as well as physically they fall asleep at their books and practically all of them are not in a proper condition to receive instruction. At their age they need after working hours relaxation, games, recreation, amusement, rather than close confinement to study. Administrative conditions are such that to a large extent these permit children must be taught in ungraded classes for illiterates along with adults which makes it impossible to give either group the instruction which is best for them.

It has been found practically impossible to give to these children in evening classes the vocational instruction which they need fully as much as they need elementary school training. Experience shows that education in vocational subjects can be given successfully only in addition to general instruction through part-time and continuation schools. Evening vocational school work is best for children

over 16 years of age and day vocational schools of every kind begin to be effective after 14. By placing permit children in part-time and continuation classes during the day, the work of the evening classes would be very much improved for adults who can then receive, in part at least, instruction complementary to their daily work. The results from the required attendance of permit boys on evening school instruction have been so unsatisfactory as to make it very evident that it does not justify the large cost and comparative waste of time on the part of these children.

Furthermore the new law makes possible the carrying out of the recommendation of the State Factory Investigation Committee when it said, "We consider one of the most crying needs in our present industrial system, the continued education of children who are obliged to go to work at an early age. . . . We strongly commend this subject to the attention of the various departments of education, state and local, and hope that continuation schools for children who have gone to work will soon be a reality."

Both of these laws have a background of education and social suggestiveness much to their credit. Many children leave school when they are 14 and go to work in industries unprofitable to their development. To stay in the regular school divorced from activities and confined to traditional subject matter apart from the race heritage of doing, making, growing things and at the same time to live in an unoccupational home is a hardship to any normal youth; and on the other hand, to work in a factory or store at a kind of work profitable only as measured by a meager wage, to learn one operation to the profit of the employer and to the loss of real growth to the child, to ask for a change of work and be told that his pay envelop is at the cashier's desk, are matters of deep concern to all who believe in creating human as well as material wealth.

Furthermore, there is an industrial problem. The industrial revolution made the employment of children profitable to the employer and possible to production. It developed the subdivision of labor, and the apprenticeship of the olden time necessarily broke down. The employer, no longer an individual, is now the company; the child worker a number and not a name.

It will be noted that this State has enacted permissive rather than compulsory continuation school legislation. This procedure is in contrast with that of several other states which have passed laws making continuation school work compulsory. The permissive legislation of this State will answer, through the wise teacher —

experience — some of the questions which even a State investigation can never thoroughly solve on paper, leaving the results of our local experimentation to be wisely incorporated into law as fast as their merits justify.

There are many difficulties in the way of establishing and maintaining compulsory continuation schools: there is a lack of competent local leaders to cooperate with those clothed with the authority of the State; there is a lack of competent teachers who can immediately put into practice the spirit and methods of continuation school instruction; there is a lack of judgment based upon experience on the part of all of us of the manner of approach to the statewide compulsory enforcement; and finally, there is a lack of sympathy and knowledge on the part of employers and the general public of the purposes of such instruction.

Any system of part-time instruction made compulsory at the present time will probably lead to a reduction in the number of young employees and possibly even to the discharge in some industries of all children under 16 because the employers would not know how to harmonize the production with compulsory continuation instruction. This sudden discharge of youthful workers from production and their return to the public schools would throw upon the latter a sudden burden which they could not adequately and immediately meet. Furthermore, no state should work on the basis that part-time instruction is the only solution of the educational and industrial questions which enter into the 14 to 16 year old employment period of youth, for there is a problem of dealing with the child before he has left school which is fully as important as attempting to deal with him after he has taken the first job which offers an opportunity for employment. In fact, we need a more adequate working knowledge of the needs and possibilities of all boys and girls and more adequate knowledge of the possibilities of productive work and its relation to human wealth; more knowledge of the working possibilities of our schools, our children, our industries. And this knowledge can best be gained through preliminary surveys and local experimentation with permissive legislation looking toward the establishment of part-time and continuation schools.

We might raise the following questions regarding schools, children and industries: Why do children leave school? Is it due to work ill-suited to their needs and to poor teaching? Is it due to economic pressure? Or, after all, is it best for them to leave?

Or, are they better off in school? Are they physically able to do the productive work which they plan to undertake? Will they develop into good citizens through the work which they do in productive labor? What does the future offer to them while at work? Can they be better trained for industry and citizenship in school before going to work or better trained for both after having entered productive employment? After they have gone to work, what type or types of education should they have to make them more efficient, to fit them for promotion, to make them better citizens? Are there some industries which offer no genuine developmental opportunities for children? Should the state, as guardian of child welfare, pass laws forbidding children to work in such industries? And, finally, can any one scheme of compulsory attendance upon school or any one solution of this pressing problem be considered in a state system of democratic education?

It might be well to examine in detail the methods of continuation instruction to see if they are of statewide application. Any plan for carrying out continuation school work must involve some one of three types of education: (1) bookwork in school or in the productive unit, which supplements the practical work of the shop, store, farm or household with theoretical instruction relating to the vocational experience of the pupil while at production; or (2) bookwork which deals with fundamentals of a training for citizenship without reference to correlation of technical subjects in the school to vocational experience outside the school; or (3) bookwork which includes both the first and the second propositions.

If the bookwork is to supplement the practical work gained through vocational experience, then it follows that for a natural sequence and progress of the continuation school work in the school, the shop or store experience must have an accompanying sequence and progress. It is not difficult to assume that a well-organized factory manufacturing machine tools can adjust its productive methods in such a manner as to provide systematic and progressive trade instruction. It is easy to believe that a progressive manufacturer would welcome and participate in a plan of coordinating his shopwork with technical instruction in the school, and already we have the experience of several such individuals to guide us, but how we are to coordinate technical bookwork with the productive methods of a shoe factory with sixty-four types of machines and its one hundred sixteen processes is a problem which is as yet unsolved. It is one thing to look with favor upon a Fitchburg,

Beverly or Cincinnati plan applied to the machine trade industries, and a far different thing to make similar applications to shoe, textile, rubber, paper box, artificial flower and machine-operating industries.

It is not clear whether it is possible to carry on part-time instruction even in the best shops and stores without so organizing the productive work of the latter that the productive labor of youth is set apart from the rest of the productive units and forms in itself a unit wherein it does its work irrespective of the general demands of the factory or shop production or distribution; in other words, the school-factory within and yet apart from the general productive effort.

One might raise a question as to whether the Beverly plan is applicable to a city having thousands of concerns of every sort or whether the Fitchburg plan of cooperation in relatively small cities is possible in a city like Chicago, whether the Cincinnati plan in a city of civic pride and well-knitted productive interests presided over by enthusiasts who had the confidence of manufacturers, is likely to be duplicated in a city like Detroit with concerns manufacturing a similar product but working under severe competition.

If continuation school methods involve supplementation of the practical work in production, then it might as well be recognized first as last that progressive technical bookwork must be accompanied by progressive shop or factory or store work and it must be admitted that there is less and less tendency in nearly every vocation carried on in factories for a progressive advancement of the worker from process to process. A continuation school plan involving technical applications in the school must be accompanied by a revival or redevelopment of the apprenticeship system. Evidently this can not be done in every vocation and if it can not be done, then compulsory continuation schools where school work supplements shopwork is out of the question for every industry.

But an enthusiast suggests that a law be passed that will force an apprenticeship system upon all production. In other words, the manufacturer is to be told how he must manufacture his products. It is readily granted that the State can regulate the hours of labor, amount of factory light, the age of entrance to factory life, even the very wages themselves, for the public can pay the bills. But to attempt to regulate by state legislation the actual processes themselves within the factory without raising the question whether the factory can offer work requiring skill; to tell the industrial revolution to turn back and retrace its steps; to designate the length of

time that a boy shall run a lathe or punch press or drop punch; to attempt to control the wheels within the factory, is a step toward state regulation of industry which is difficult to follow.

The apprenticeship systems in the unskilled trades are not found and even a superficial investigation shows that many occupations do not lead to an acceptable trade and do not require an apprenticeship of two or three years. A worker may become skilled in a few months' time and does not require a general apprenticeship. A statewide apprenticeship contract would be lightly held by both employer and child worker; on the part of the employer because of the sudden changes in quantity of production requiring greater or smaller number of apprentices which means a constant hiring and discharging of youthful workers, a condition which did not exist in the old days of production; on the part of the youth because he would hold lightly his apprenticeship contract, he would imitate his elders and obey the call of the dollar. Punishment for each party might be suggested, but we must remember that public sentiment is no longer in touch with the spirit of the old apprenticeship days.

It even may be true that the industrial revolution is to go even further; that more and more workers under its system are to be hedged in by mechanical processes which in themselves are deadening. It may be that all of us are to work, so to speak, in the basement of society; that we are to work in the way this world demands, expressing, for a part of the day, society and subordinating ourselves. In the morning of our work it may be that we are to be selected for our latent capacities, that we are to be Taylorized into holding our hands efficiently, to lift effectively, to move quickly, to follow directions definitely and that the accumulations of science and genius, the ideas and experiences of others will be at our service to show us how to work, and that perhaps we shall be able to earn as much daily in five hours as formerly in nine. But for the rest of the day it may be that we are to take our stands as individuals on the ground floor of the world, that in the morning of our work in the world industrial we are selected, but in the evening of our living, we ourselves select and when we are away from the machine we owe it to ourselves and to society to express ourselves. It may be that society will wake up some day to realize that we have made machines out of ourselves, but instead of doing away with the machine and saying that it is dead, we will say that it is only mechanically-minded men that are dead. Instead of railing at the dead machine we shall speak of the dead men at the machine.

But to turn away from prophesying. Although it is said that the practical man is now the one who can make the best guess on tomorrow, being a prophet in these days is almost smug and respectable.

If the bookwork in the unskilled industries and those which provide for little or no supplementation is to deal with training for citizenship and for a house of leisure irrespective of the methods of shop production or technical supplementation of shop practice, then one sees a large and legitimate field of educational activity for youth between 14 and 16. But whether this training is to be given in an all-day school before entering the factory or in a continuation school after entrance upon productive labor is a momentous question, one which has long been and is yet unanswered. Of course, some good people would hold youth in school until the judgment day with a perfect faith in its value and irrespective of what the child was taught or what it needed. And others would say that so long as the school and the home fail to furnish any occupational work; fail to satisfy that race heritage, strong in adolescence, of a desire for actual accomplishment and not merely study about it, that it would be better for youth to go to work where it can learn how to do by doing, how to observe by observing, how to be industrious by industry.

But in order to give a boy or girl concrete experience, is it necessary to tag him to the nearest factory or store? In order to know the length of a yard must the girl be at the ribbon counter in the five cent store? In order to find out the location of the streets of the city, must a boy be shoved into the messenger service? We appreciate that the upper elementary schools are decidedly weak in their occupational work. We know that the home has turned its back upon giving children opportunities for working out their salvation through productive labor. We know that children need to realize the activity experiences carried on through the medium of hand work which will assist them to an appreciation of the means and methods by which society accomplishes its work. We know that children should have occupational experiences which will serve to assist them to define an occupational purpose in life by offering a basis for an intelligent choice through the variety of experiences offered.

In short, instead of placing too much reliance upon educational benefits accruing from compulsory continuation school work and believing that it will solve all the educational and industrial prob-

lems concerned with employed youth, it might be better to re-create and revitalize our present educational machinery for developing a sane comprehensive plan for furthering the educative process for youth before it goes to work and then as our means allow and our keenness of judgment dictated, to grapple thoroughly, thoughtfully and earnestly with the more complex educational and industrial problems concerned with the child while at work. We must decide whether day schools can be made effective before we destroy their effectiveness by practically urging every one to go to work and return to school for their education, for this is what it amounts to in much of our continuation school work. If one doubts the statement, he should examine the instruction given in the average corporation school or in the average public continuation school. Its program teaches boys the number of one-tenth inches in an inch; the girls are figuring the cost of five-eights of a yard at  $37\frac{1}{2}$  cents a yard; the writing of a business letter; the ringing in of a time clock with punctuality; the keeping of the hands clean in handling ribbon; the volume of a piece of cast iron and such similar problems as show that pupils before they enter upon productive work had failed to make good in a concrete test involving accuracy, application, neatness and business integrity.

We hear a great deal about the German continuation schools, of the cooperation of manufacturers and school men, of the assistance given to the movement by labor unions. We must remember that America is the center of an industrial and social movement which is in marked contrast with that of Germany. It would be well if trade unions of America took as much interest in the technic of the trade as they do in the house and wages; if the manufacturers had the guild spirit and less of the lobby spirit; if America had the heavy hand of an emperor instead of the uncertain hand of a public conscience whose ears are often deaf and whose eyes are often closed. If America had the manufacturing methods of southern Germany, the cooperative efforts of manufacturers and unions, the discipline of an emperor, the "stand" notion of the German parent, we might copy, if we would, the German system of continuation schools.

It may be, however, that America will solve its whole industrial education problem in its own way, that an American plan will be developed which will meet two well-established factors—American educational institutions and American methods of production.

It is the business of the State to train its youth toward the permanent requirements of industry. Such requirements are good health that the worker may withstand the nervous strain of modern production, personal and socialized character to assist in the solution of tremendous economic problems which are arising in the labor world, certain elements of citizenship training in order that we may have industrial justice in our democracy, mental capacity that the worker may think as well as operate, and finally, fundamental skill exchangeable in various branches of a trade or between various trades themselves. It may even be that the state should leave it to the industries themselves to train their youth in the exacting and minute processes of the various differentiated lines of activity by a factory and office apprenticeship system maintained at their own expense. It may even be that the state should forbid young people between 14 and 16 to work in certain types of industries. If such children are over 16 years of age it may be that they are to be returned to the day school for a few hours a week for part-time work in specialized branches of the craft at the expense of the employer and with the cooperation of the state. Or, it may be that the school is to go to the factory and establish within the works classroom instruction.

It may be that if the child between 14 and 16 is to be allowed to work, the line of work which is given to him in the continuation school should, in the great majority of our industries, deal with citizenship training only, and if any technical instruction is given, it should be along lines which would train him away from his present occupation into one which could fit him to do the work which he will be required to do when he is an adult.

It may be that a state which seriously proposes to do something definite for its youthful citizenship and for its industries by a comprehensive educational plan will think of the educative process as being under two great divisions. One might be called the "way in" education—an education practically common to all pupils; dealing in the elements of citizenship, studies of language, history, geography, a training in the rudiments of arithmetic and elementary science, an appreciation of nature, music and the decorative arts, a training of hand skill with its correlative development of mentality. This education is to be given to pupils before they leave school at the age of 16, by the combined efforts of the home, the environment, and the schoolhouse.

The other phase of education might be called the "way out" education. It is specifically adapted to individual needs—voca-

tional in a narrow sense, social in its broadest interpretation—given informally as well as formally through every social, educational and civic agency whose good works can in any way contribute to that educative process which will make people after they have gone to work more contented, more efficient, more open-minded and better citizens of an industrial democracy.

Such a program is truly American. It is not copied from the class versus caste educational system of a Germany; nor the culture versus chattel civilization of a Greece; nor the gentleman versus peasant system of a France; nor the Oxford versus London slum plan of an England. It is based upon a democracy of equality of educational opportunity. Its plan is developed on the basis that every child is a ward of the State up to at least 16 years of age; that the State has the right to see that his health is conserved, to guard when necessary his morals, to watch over his parents and compel them to let him go to school, to protect him from harmful child labor. The state is to do everything in its power to make the child able to meet the physical and mental emergencies of life adequately; make him happy in the joy of cheerful labor; assist him in learning to use the eye and hand in useful yet beautiful craft work, bring him to the point of enjoying that character building which comes only with actual participation in the processes of feeling, seeing, thinking, doing; help him discover his aptitudes and interests and send him on the road to a vocation with some knowledge of its direction and some proficiency in walking thereon. These are some of the steps in the educative process which mark the "way in."

Let us assume that the child has now left school. He is now on the road. It is long, confusing, with many turns and pitfalls. It is filled with automatic machines, business systems, new inventions displacing the labor of his hands. It has monotony, competition, unrest. It has the burden of long hours, low wages, and industrial diseases. It is mile-stoned with confusing signals, signs and beckonings.

The state again seeks its opportunity to meet its obligations. It has a new point of view. It no longer raises the heavy hand of command over large groups of children, parents or employers. Its attitude is that of offering opportunities for the individual worker and the individual employer to find his "way out." The state has its optional part-time school where its youth may learn the technic of a new process; where the housewife may learn of

labor-saving devices. It has its evening schools for further instruction in the technic of the craft or for the intellectual up-lift of the saleswoman, the machine tender, the day laborer. It has its state correspondence courses where the coal shoveler may study between the firings of the boiler, where the lonely signal operator may receive his first lessons in the mysterious force which his levers direct. It has its summer extension work for the agricultural teacher and winter courses for the farmer's boy who has the leisure which awaits the coming of spring. It has its municipal theater; its civic center; its people's gymnasium; its playgrounds and parks to amuse a wornout mind, build up a tired body and reclaim a spirit lost in the maze of industrialism.

Permanent needs of industry, vital needs of children, fundamental needs of human society can never be met by any narrower conception of the educative process.

The following questions relative to continuation school work are yet to be answered in this State:

1 Is it practical to develop a continuation school in a community of two thousand people having one industry and employing a small number of children, say, for example, seven?

With 170 possible communities with a population of less than 2000, in the State, there are but 42 that have a dominant industry and employ more than 100 people. More than 50 per cent of these industries are classified under the head of "unskilled" and do not require a high degree of training. Upon investigation of the census report it is clearly evident that less than 5 per cent of the manufacturing in the State of New York is carried on in communities with a population of less than 2000.

2 Is it wise for a state like New York with 50 per cent of its school districts having a valuation of less than \$60,000 to ask these small communities to develop continuation instruction when they can not properly support their present education?

3 Will the employers in all types of industry cooperate in the establishment of continuation school work?

4 Can the work done by young people in all industries be so arranged that they can be dismissed from the factory for a few hours a week without damage to the manufacturing process?

5 What kind of school training will meet the permanent requirements of industry and the permanent requirements of citizenship?

6 Is it possible to expect employers to pay the same wage as they now pay for five to eight hours less work in the factory, due to attendance upon continuation school?

7 Can a complete program of part-time schooling be put immediately into operation and not greatly complicate the problem of public education, adding as it will in any state of moderate size, from 50,000 to 150,000 children to the number already attending public schools?

8 Is it possible to develop a body of teachers competent to deal with continuation school instruction in such a way that pupils will learn through a study of real things and not through a line of abstract thinking?

9 Is part-time schooling practical in all industries which employ children under 16 years of age?

10 Is it wise for the State to train definitely children of 14 years of age for lines of work which it knows lacks permanency to youth and in all probability are not permanent needs in the industry?

11 Is it practical or wise to give supplementary instruction relating to the temporary occupations of childhood, that is, delivery wagon boys, telegraph messengers, elevator boys, doll makers, etc.?

12 Should the State be a partner to an educational device for fitting children so perfectly to carry on their nonpermanent employment that they can never successfully get out of that employment?

The following description is indicative of the methods employed in one type of continuation school work, the problems to be met and the results likely to be attained:

**An experiment in continuation school work.** An experimental continuation trade class was opened in public school 4, New York City. The work covered a period of ten weeks and the class was composed of sixteen white-goods workers, four young workers being selected from four prominent business establishments. The girls attended the class on alternate weeks in groups of eight. A written report stating absences and character of work was submitted to the employer on Friday afternoon. The wage for the week was based upon this report, deduction being made for absence as in the shop. The hours were from 8.30 a. m. to 5 p. m. with one-half hour intermission for luncheon.

From 8.30 to 12.30 the program was as follows: trade arithmetic, spelling, English to foreigners, business letter writing, trade geography, hygiene for the worker, special corrective gymnastics, civics based upon the need of an intelligent understanding of the relations of the members of a trade to one another and to the State, ethics, preparation of noon lunch, elementary study of food and its rela-

tion to health and efficiency. The program from 2 to 5 o'clock was as follows: study of the mechanism of a foot-power machine, how to run it and how to keep it in order; elementary study of textile (cotton goods); making of whole garment with emphasis upon the general setting of each girl's particular (shop) process to whole of the industry. The instructors were a regular teacher in the school, a special teacher of domestic science, and a graduate of Pratt Institute, who taught textiles.

Thirteen girls remained and completed the course. Of these, 4 were born in the United States, 4 in Russia, 2 in Italy, 2 in Hungary and 1 in Austria.

2 had never attended school.

1 had had 1 year's schooling abroad, none in United States.

3 " 2 years' " "

1 " 6 years' " "

1 " 1 year's " 3 months in United States.

1 " 6 years' " none in United States.

1 " 1 year's " 2 months evening school in  
United States.

1 " 6 years' " none in United States.

2 " 7½ years' " "

2 were 24 years of age.

1 was 25 "

1 was 19 "

3 were 18 "

2 were 17 "

4 were 16 "

2 received a wage of \$4—\$8.50 a week.

4 " \$5—\$8.50 "

2 " \$6—\$9.50 "

1 " \$7—\$8 "

1 " \$6—\$12 "

1 " \$8 "

The following shop processes were represented: 4 seaming, 3 pressing, 2 lace running, 2 finishing, 1 button hole operating, 1 entire sleevemaking.

Each worker made from 2 to 8 garments. The total output was 65 whole garments.

The cost of the ten weeks' experiment was: to the four manufacturers, approximately \$450, for wages of workers while at

school and for material; to the Singer Sewing Machine Co., the salary of the textile teacher for fifty half days and the use of eight powerfoot machines; to the city department of education, nothing.

The principal writes: "This ten-weeks' experiment was the outcome of a generous and public-spirited offer on the part of the manufacturers. It elicited a swift and equally generous response from the department of education. The statistics presented indicate the great need of this cooperative work between the shop and the school. The response of these particular workers to the opportunity presented was all that one could desire. Their whole general attitude toward their employers and toward their work has become more wholesome, and they are beginning to feel that life is an exchange of services. These girls are better workers and better citizens than they were three months ago."

#### EVENING VOCATIONAL SCHOOLS

The law defines State-aided evening vocational schools as being those in which instruction is given in the trades and in industrial, agricultural and homemaking subjects, and which are open to pupils over 16 years of age, who are regularly and lawfully employed during the day, and which provide instruction in subjects related to the practical work carried on in such employment. The law provides, however, that when such evening vocational schools provide instruction in homemaking they shall be open to all women over 16 years of age who are employed in any capacity during the day.

The law defines very definitely the type of instruction which shall be given to the men and boys in these schools. It is to be related to the practical work carried on by the pupil in his daily employment. In the case of women and girls, however, instruction in homemaking is open to all without reference to their daily employment. The difference in the type of instruction between men and women is significant. It suggests that men will require a line of evening school work which will be of service to them in their present employment. It implies that women will find most useful a type of instruction which leads toward the home and away from their present employment.

This distinction points out what is perhaps a most unfortunate tendency of the industries in that it places the women and girls in the highly specialized occupations requiring little or no educational preparation. While it seems impracticable to deprive girls

from 14 to 20 of the opportunities for wage-earning, on the other hand it is certainly undesirable that during this period there should be no preparation for homemaking interests. Society is undoubtedly requiring that the two functions become harmonized, to the end that the welfare of the individual and the soundness of society may at the same time be conserved. Thus the law relating to evening vocational instruction for women is attempting to meet this twofold problem.

It is not to be understood that evening vocational classes for women are limited only to women who are engaged in the unskilled industries. This work usually includes practical training in such subjects as cooking, needlework in plain sewing and garment making and the trimming of hats, all for domestic purposes and for all women who are employed in any capacity during the day. It may include and should include the training of girls in evening classes for dressmaking and millinery trades as well as giving them training in these lines as household accomplishments. There are at least six groups of girls to be considered in providing for evening instruction: (1) shop and factory girls who seek additional training looking to greater efficiency and wage-earning capacity in the occupations in which they are employed; (2) housewives and homemakers who seek training in the theory and technic of household economy; (3) girls engaged in household service who seek technical training in domestic economy looking to greater efficiency and wage-earning capacity in their calling; (4) shop and factory girls seeking training in order that they may shift from one wage-earning occupation to another closely related to the one in which they are engaged; (5) shop, factory, office and store girls who seek some simple training in some activity as a personal and convenient accomplishment but not looking toward following up this training for wage-earning purposes; (6) those girls of a type similar to the aforementioned who are now working but soon expect to enter the home as wives and homemakers.

A study of the whole field of evening school work is most absorbing and the question of the approach of our supplemental education in its relation to industry is no small part of that field. It is unfortunate that there is such a distinct line of cleavage between periods of formal education and wage-earning work. Our young men and women should be workers, and yet always students with enough time to spare from both for recreation and full enjoyment of life. While it may be visionary to hope that some day there will

be this close connection between school and life, everyone must regret at least that the majority of our people look upon education as a schooling occupying the first few years of life, during which they do little or no work, and this schooling over, are ready to enter the industrial world with few if any opportunities for further study, save those which the exceptionally ambitious man or woman will create for himself.

There are certain fundamental principles to be followed in the conduct of evening school work. First, it must deal with two rather distinct classes: (*a*) students proper, constituting the small minority who seek a general education with definite student purpose, but often under rather unusual personal conditions; (*b*) non-student class, constituting the large majority, who, by suggestion or counsel, seek educational help in the solution of some present problem or in fitting for some special service. Second, the scheme of work offered must make the various features elective to a maximum degree. While the ideas of the schoolman can and must prevail in the day schools, the individual notions of a mature student will dominate his selection of subjects in the evening schools. Third, the work must be flexible enough in its adaption to meet individual, special and even transient needs and conditions. Fourth, the subjects must be presented in small and varied units. Fifth, the various units of work must be so scheduled that sequential arrangement in courses is possible when desired. It should even be encouraged. Sixth, all forms of work must glow with the re-creative element, both in subject matter and treatment. Seventh, the work must, in many of its rudimentary forms, aim at suggestion and inspiration, rather than complete or thorough training. Eighth, the work must seek to increase the student's capacity to live efficiently and largely, rather than to promote the accumulation of knowledge or the development of scholastic ability. Ninth, much stress must be laid on the teaching itself. By suggestion and personal cooperation, the teacher can to a wonderful degree awaken and develop a mind rendered mentally inactive by disassociation with educational forces. Tenth, the work must have its own distinct ideals, methods and estimates of value, based upon the current conditions and individual needs of the nonstudent class rather than on regular school standards which are primarily applicable to the student class.

This preliminary survey of the whole field of supplemental education has been made in order to bring out the growing import-

ance of the movement. An important educational move in the immediate future will be in the direction of improving the instruction of evening schools and adapting them to the needs of industrial workers. Undoubtedly the methods of these schools should be recast. They should adapt themselves to modern industrial conditions, and through proper instruction in practical subjects, touch more closely the economic life of the times. The pupils in these schools have already received a more or less formal education in the public schools. They are receiving in their daily work incidental industrial experience, and have learned from this thorough but expensive teacher, that they are deficient in some lines; hence, this endeavor, outside their working hours, to fit themselves for definite lines of activity.

There are certain vital needs in the organization and methods of conducting evening industrial improvement schools. In common with all supplemental education, voluntarily sought, these schools, as has already been implied, deal definitely with two rather distinct classes. The first are those who are naturally students and seek educational advantages in the advanced lines of mathematics, mechanics, chemistry etc. with a definite purpose. Cooper Union of New York City and Pratt Institute of Brooklyn, in their applied science courses, appeal to this class of students. The second class are those who are not naturally students, who still, with a more or less definite aim, seek educational help in the solution of some present and pressing problem which involves special educational service. The latter class is concerned with shop mathematics, plan reading, shop practice, etc. Most of the academic shop instruction in the Stuyvesant Evening School of Trades, New York City, the evening industrial classes in Albany, Troy, Syracuse, Elmira, the various evening trade schools in Buffalo, New York, Rochester, Yonkers, and similar schools, reach this group of students. The recognition of these two classes means that the courses of instruction must be of two kinds — one comparing favorably with the day school work in its general scheme; the other, the major part, differing decidedly in methods from those ordinarily pursued.

Evening school instruction must appeal to the student immediately at the beginning of his work. The subject matter of the early lessons must satisfy the student's need as he has defined it. The success of evening instruction absolutely depends upon this principle.

For example, a young machinist has received a reprimand from his foreman because he can not read a working drawing with suffi-

cient skill to do properly his daily work. He enrolls in a drafting course to meet that deficiency and finds that the first two lessons are concerned with letter plates, the next three with drawing straight and curved lines and the handling of instruments, and that the remainder of the term is to be spent on the projection of points, lines, surfaces and solids. During this time he is receiving in his daily work the same reprimands, and is therefore debating in his own mind the value of his evening instruction.

It is undoubtedly true that the drawing course here outlined is a proper one for teaching mechanical drawing to those who are to be draftsmen, but the average apprentice machinist does not see the direct application of this instruction to his work. He enrolled for a definite purpose. To be sure, it was a narrow one, but nevertheless it had economic value to him. It would be perfectly possible to give in the first evening some elementary instruction in the reading of simple drawings; to teach him in five lessons where to look for the dimensions denoting length, breadth and thickness; to show him the principles of simple sectional drawings and to cause him to comprehend the laying out of holes for drilling.

Instead of leaving school at the end of the fifth lesson, with no instruction which appealed to him, he would have received enough in those five lessons to fit him to meet the demands of his foreman and it is more than likely that he would have remained in the drafting class to receive the more definite and thorough instruction in the theory of mechanical drawing such as must be gained if one is fully to comprehend and cover the entire range of the subject.

It has already been stated that the various features must be elective and flexible and presented in small and varied units. Instead of presenting in a course of study the subjects of arithmetic, geometry etc., there should be printed "arithmetic for mechanics," "arithmetic for clerks," "mechanical drawing for apprentices," etc. Where it is possible, even a finer differentiation is desirable, such as "arithmetic for plumbers," "arithmetic for errand boys," "mechanical drawings for machine tenders," etc. Not only will this presentation serve to catch the eye of the prospective student, but it will also suggest to him that special effort is to be made in the class work to help him in his daily occupation. This form of advertising is a reason for much of the success of the correspondence schools. The instruction in the various branches must be adapted to the needs of the various occupations. The terms used in the classroom must savor of the shop, office and store. Experience

shows that the problem, "What is  $\frac{3}{4}$  of  $37\frac{1}{2}$ ?" does not appeal so much to a clerk as the problem, "What will  $\frac{3}{4}$  of a yard of cloth cost at  $37\frac{1}{2}$  cents a yard?" On the other hand, the latter problem does not awaken the interest of the mechanic as much as the problem involving the same operations which reads, "If a copper castings weighs  $37\frac{1}{2}$  pounds and specific gravity of iron is  $\frac{3}{4}$  of that of copper, what will the casting weigh if made of iron?

The student will do better work if the instruction in the related branches of certain occupations is given under one teacher, rather than under the departmental system of specialists in each branch. The student should not elect more than two or three subjects, the major one bearing directly upon his daily work, the others somewhat related to the main one. It is this major subject which has drawn the student into the school and it is this which will keep him there if, along with it, one or two allied subjects are taught in a practical manner by the teacher of the major subject. The student will understand better the connection between these subjects because the teacher has himself a clear conception of the relationship. For instance, a machinist enrolls in an evening school for mechanical drawing, and finds that he needs to brush up in fractions and decimals and that he needs square root in order to work out a formula for screw threads. The opportune time to teach him these topics is when the need for them arises, and none is more qualified to give the required practical instruction in such topics than a competent drawing teacher. In Yonkers the teacher of machine shop practice devotes a portion of the time to teaching shop mathematics to his students. When large classes demand assistant teachers, these assistants should be assigned to teaching applied mathematics through individual instruction at the drawing table and benches, or to giving instruction to small groups in an adjoining room, keeping before the mind of the student the direct connection between arithmetic and handwork. When the student has reached a place in the drafting course dealing with the subject of screw threads, it becomes necessary for him to apply some such formula as  $P = 0.24 \sqrt{d + 0.625} - 0.175$  where P is the pitch of the thread and d is the diameter of the bolt. This problem involves square root and decimals. One hour of individual or small group instruction by the drawing teacher will give the student the necessary familiarity with these mathematical processes to make them sufficiently clear to him in their application to the formula. Instead of thorough preparation in mathematics before electing mechanical

drawing, it would be better to have the mechanical drawing lead the students into mathematics.

Students must be grouped in the vocational classes according to their trade or business. The old workingman's guilds were founded for the purpose of social intercourse and mental stimulus. Each trade had its own guild. The daily trade experiences of each member became the property of all members. Discussions relating to the practices of their chosen trade occupied their attention.

It is easily seen that students grouped according to occupation have an opportunity to talk over their trade interests, the teacher acting as a leader and securing from the students expressions of their trade experiences, through which they obtain the most practical solution of the particular problem at hand. Teachers who have had evening school experience know how difficult it is to get the students to recite and express themselves at the blackboard. A free discussion of the point at issue makes the student lose his self-consciousness and before he is aware of it he is at the board illustrating his particular method of solution.

Already many of our day schools which have well-equipped shops and drawing rooms are offering night courses and are thus bringing to our attention a sensible solution of the relationship which should exist between factory workers and the public schools. These schools are instrumental in bringing about a more general system of trade instruction throughout the country because of their direct exemplification of the benefits of trade training, even if this training is given only to those who are already employed during the day in shops and factories. The plan costs but little. The buildings and internal equipment already exist. There is no cost of maintenance beyond the necessary heat, light, power, materials and instruction. Classes are being conducted in machine shop practice, plumbing, patternmaking, cabinet work, electricity, drawing, shop mathematics, etc. The courses as planned for these several departments are as thorough and complete as it is possible to make them in an evening school. The attendance upon these schools is very large and remarkably constant, being better than that in most night schools. In this way men already employed in the trades, who know, therefore, at least a part of the trade in which they are employed, are given an opportunity to broaden their mechanical training and to make themselves more efficient workmen.

Following is a list of some of the courses offered in the evening vocational schools in the State. That the list must be necessarily

abridged is clearly seen when it is stated that the city of Rochester offers one hundred two evening vocational courses, many of which are of the "short unit" order, and employs one hundred two teachers to carry on this instruction.

Structural engineering design	Plumbing
Plan reading and estimating	Machine shop practice
Patent office drawing	Cooking
Sheet metal patternmaking	Dressmaking
Telephones	Embroidery
Electric lights	Millinery
Elements of alternating currents	Shirt waist making
Armature winding	China decorating
Storage batteries	Lace making
Steam engineering	Architectural drafting
Forging for machinists	Blue print reading
Forging for masons and stonecutters	Applied mechanics
Course for horseshoers	Estimating
Steel welding	Shop mathematics
Printing	Home nursing and care of children
Window frame making	Household appliances
Sash making	Pure foods and pure food laws
Door frame making	Public sanitation
Door making	Household chemistry and sanitation
Wainscot making	House decoration
Frame building construction	Costume designing
Veneer work	Boiler testing
Lens making	Power plant maintenance
Cabinet making	Hot water circulation
Gas engine operating	Patternmaking

The following outline of unit lessons as given in the free night school for printers' apprentices in Buffalo is offered as an illustration of how a system of unit courses primarily intended for people who are already connected with a vocation can be made of direct and immediate benefit to them.

## ACADEMIC SUBJECTS

**Group I Business English***General review of essentials of grammar:*

## Lessons

Parts of speech.....	4
Sentence structure .....	3
Paragraphing and composition.....	3
Business letters .....	2
Correction of faulty English.....	2

*Technical studies relating to printing:*

Rules for capitals .....	2
Rules for punctuation marks.....	4
Rules for word division.....	2
Rules for spelling.....	2
Proofreading .....	2
Abbreviations .....	1
Commercial forms .....	2

**Group 2 Mathematics***General review of arithmetic:*

	Lessons
Drill in fundamental processes.....	I
Common fractions .....	I
Decimal fractions .....	I
Denominate numbers .....	I
Percentage .....	2
Mensuration .....	I

*Technical studies relating to printing:*

Problems in paper-cutting.....	I
Measuring composed type .....	I
Cost estimating .....	10
Computing type .....	}
Computing number of leads.....	I
Estimating manuscript .....	}
Personal accounts, time slips, stock reports, etc.....	I

**Group 3 Science***Hygiene:*

Food, clothing, shelter.....	I
Personal hygiene .....	I
Sanitation .....	I
Exercise, fatigue, recreation.....	I
Health rules for the worker.....	I
Occupational dangers and accidents.....	I
First aid to the injured.....	I

*Physics and chemistry:*

Study of the mechanics of presses, binders, paper cutters, etc.....	3
Electricity and its use in the printshop.....	3
Heating, lighting and ventilating of workrooms.....	I
The chemistry of inks, paper, etc.....	I

**Group 4 Economics***History, geography and civics:*

General industrial history, including a study of the progress of mankind from primitive times down to present, touching on early arts and handicrafts, division of labor, inventions, guilds, organization of labor and capital, collective bargaining, etc.....	5
Short biographies of Franklin, Caxton, Morris and other leading masters .....	3
Commercial and industrial Buffalo and the printing industry in Buffalo .....	I
Duties of citizenship.....	2
Our city, state and national governments.....	I

**Group 1**

## COMPOSING ROOM WORK

Printing history .....	2
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**Group 2**

Type cases .....	6
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**Group 3**

Correct spacing .....	2
Materials .....	2

**Group 4 Typesetting**

Preliminary instruction .....	2
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**Group 5**

Simple composition .....	7
Proofs .....	2

	Lessons
<b>Group 6</b>	
Simple book composition.....	6
Distribution .....	1
<b>Group 7</b>	
Book composition .....	8
<b>Group 8</b>	
Type sizes .....	2
Type faces .....	2
Type names .....	4
<b>Group 9</b>	
Discussions of printing processes and allied arts.....	8
<b>Group 10 Typesetting (tabular)</b>	
Preliminary instruction .....	2
Tabular forms .....	5
Distribution of tabular forms.....	2
<b>Group 11 Typographical design</b>	
Proportion .....	4
Balance .....	3
Harmony .....	4
Lettering .....	6
Commercial designing .....	6
<b>Group 12</b>	
Composition, job .....	10
<b>Group 13</b>	
Composition, job .....	7
<b>Group 14</b>	
Composition of advertisements.....	6

## PRESSROOM WORK

<b>Group 1 History of printing</b>	
Machinery .....	1
<b>Group 2 Presswork</b>	
Mechanical instruction .....	3
Feeding (job presses).....	2
Slip-sheeting, bronzing, opening envelops, etc.....	2
Washing, cleaning, oiling.....	2
Making-ready of plain type forms.....	6
Making-ready of plates and type.....	6
Making-ready of plates and halftones.....	8
<b>Group 3 Imposition</b>	
Elementary principles .....	2
Simple forms .....	2
Two-page forms .....	2
Four-page forms .....	4
Six-page folder forms.....	2
Eight to thirty-two page forms (each).....	4
Clearing away .....	1
<b>Group 4 Color study</b>	
Manufacture of ink.....	1
Care of ink.....	1
Complementary harmony .....	2
Harmony of tints and shades.....	2
Harmony of black with other colors.....	2
Harmony of primary colors .....	2
Harmony of secondary colors .....	2
Harmony of tertiary colors .....	2
Harmony of primary and secondary colors.....	2

<b>Group 4 Color study (continued)</b>	<b>Lessons</b>
Harmony of secondary and tertiary colors.....	2
Harmony of paper and ink.....	2
Light and darkness as applied to color.....	2
Mixing of colors.....	5
Mixing tints .....	5
Subduing colors .....	5
Special inks and bronzes.....	3
<b>Group 5 Paper</b>	
History .....	2
Manufacture .....	2
Sizes, weights and qualities.....	2
Cutting .....	2
History of bookbinding.....	I
<b>Group 6 Rollers</b>	
Manufacture .....	I
Care .....	I

### DRAWING AND HANDWORK

Drawing and handwork have been placed upon a firm footing during the past four years. In general the aim is twofold: first, to provide an efficient means of training in self-expression; second, to develop refined taste. Self-expression finds its outlet in drawing with the pencil, colored crayon or water color familiar objects, specimens studied in nature work, maps and problems in construction and decoration. Refined taste is rapidly becoming apparent in the general execution of all work and in the work of the drawing periods especially.

#### RURAL SCHOOLS

Increased activity in the subjects of drawing and handwork has been apparent since the introduction of the present system of rural school supervision. The district superintendents are keenly alive to the importance of drawing in the country communities. It has been given a prominent place on the programs of the various district conferences and earnest efforts on the part of the teachers have produced gratifying results.

The University has issued charts showing possibilities of correlation with all subjects in the Syllabus for Elementary Schools and has published a simplified outline for use in the rural schools. In addition, the State specialist in drawing and the chief examiner in drawing are constantly participating in numerous rural school teachers' gatherings throughout the State. Plans for further assistance are being formulated in the shape of additional leaflets discussing special phases of the general subject.

The aim of self-expression in these schools can not be so readily attained as in larger communities owing to lack of adequate super-

vision and equipment, such as paper and colors and material for constructive problems. Expression is limited to pencil drawing upon inexpensive paper with a possible addition of colored crayon. But taste can be developed here as in any school. Perhaps the most vital display of this desirable attribute may be obtained in the decoration of the schoolroom. Here is opportunity to simplify, tint and make beautiful a bare or crowded interior — for both extremes abound. Attention is already being paid to this important matter both within the buildings and on the school grounds. Taste may be shown in these schools to greater advantage through various kinds of handwork than through drawing. Caring for the school grounds and decorating the interior are excellent types of this kind of expression.

#### ELEMENTARY SCHOOLS

The elementary schools as a whole are doing acceptable work under the Syllabus for Elementary Schools. The syllabus adequately covers the work of these schools. It is broad in scope, comprehensive in treatment and is in full accord with modern thought upon the subject.

There is a growing tendency to eliminate the nonessentials in all phases of the work. The graphic expression is better in content and technic, the design is becoming more practical and is related to community needs and the construction is more stable and workmanlike.

With respect to construction or handwork, the general criticism would be that there is too little in the schools. Representation may be expressed in our public institutions mainly through line drawing upon paper. Design and construction are quite different in character and demand an outlet through the concrete three-dimensional product. Light materials, such as paper, thin cardboard and cloth in the primary grades should be supplemented by heavier materials such as heavy cardboard, wood and sheet metal in the upper grades. A close relation should exist between the graphic and this material expression and the pupils should early be lead to see that they are not only vital to each other but are vital to the community at large. Mechanical drafting, shop sketching, map drawing, city planning, etc. can easily be conceived by pupils of elementary school age and their training should include this applied teaching through various forms of manual training.

Schools in the larger villages and cities are usually under some kind of supervision which makes for graded courses and increasingly

better work. When this supervision is under the direction of a special drawing teacher who has had training for her work, the subject is usually successfully handled. But many teachers who specialize in drawing have inadequate training and in many schools the work is carried on by a regular grade teacher who, unfortunately, must teach other subjects as well. This difficulty of obtaining proper supervision may be easily solved if a number of neighboring villages would unite in hiring a competent supervisor to direct the work, her duties consisting of personal visits to each village at least once a week.

#### SECONDARY SCHOOLS

Drawing in secondary schools is likewise on a firmer footing than ever before. Earlier geometric drawing, mechanical perspective, historic ornament and picture copying in free-hand drawing have given way to real free-hand drawing from actual objects of common types and original design both in motif and application. Less emphasis has been placed upon technic and greater emphasis has been placed upon correct construction, careful visualization and neat, orderly work. In addition, stress is laid upon the application of principles of drawing and design to fields outside the drawing room, as the sciences, the person, the home, etc.

In mechanical drawing the actual shop and drafting room conditions are sought and emphasis is placed upon accuracy, visualization of the object, rapid sketching and fine technic.

A new drawing syllabus for secondary schools has been prepared, carefully outlining all courses and giving all necessary data with respect to counts, credits, examinations etc. Advanced work will be eliminated from those schools that can not properly provide for it and concentrated effort may then be directed toward strengthening elementary drawing.

Unfortunately more than 70 per cent of the high school teachers of drawing are untrained. In most of these cases the teacher handles from three to nine different subjects, including drawing. Colleges do not train students in this subject and as college graduates are usually employed in academic work, drawing naturally suffers. For this reason the elimination of advanced drawing from such schools is desirable.

Pupils should fulfil the requirements for normal school entrance without the necessity of electing an advanced subject under this scheme.

The general complaint that pupils entering normal schools are unprepared in drawing is in part due to the arrangements of the old drawing syllabus, whereby a pupil studied an advanced subject in addition to elementary work and was at liberty to elect any one of three offered. The old scheme provided for not less than three years of work scattered over two courses. Arrangements should be made to concentrate more work in one course of two years and relate the subject matter more closely to the needs of the normal school candidate as well as to the average child.

The aim of the work in representative drawing is to lead pupils to a power to show in simple outline and accented drawing the appearance of the forms thus studied with reference to the foreshortening of planes and surfaces and the apparent convergence of lines. The appearance of every drawing plate is conditioned by the excellence of the relations between the size of the sheets and the size and placing of the drawing. Training in appreciation by the pupil of the excellence of arrangement is a training in good taste.

As an additional aim, the instruction in representative drawing seeks to present well-arranged groups of objects as models and to emphasize in the drawings made from these groups the principles of good size and arrangement. These principles together form the study of composition in representative drawing.

In elementary design, pupils are led to understand the principles of variety, balance, rhythm, unity and harmony. Their application in a few simple problems should be based upon the home, the person, the commercial or the industrial center. Classroom discussion of the problems leads the pupils to apply the principles learned to questions relating to color and design as seen in their surroundings, as in the choice of costumes, the arrangement of a room or the setting of a table, the planning of a letterhead or poster, the choice of furniture, etc.

The technical work in design (drawing and application of color) is required to be nearly done with emphasis primarily upon taste, as in the foregoing.

Instruction in lettering forms a part of each course in design. In schools doing commercial work, the major emphasis should be placed upon this instruction.

Mechanical drawing aims to teach the pupil the use of drafting instruments and seeks to give him knowledge of projections. In addition, the pupil is led to understand thoroughly the procedure

in making a correct working drawing, becomes familiar with the more common drafting conventions and is led to produce an accurate and well-executed plate.

Charts supplementary to the syllabus and outlining definite problems in elementary representation and design, mechanical drawing 1 and mechanical drawing 2, upon which examinations were based, have proved to be extremely helpful in all the schools. The work of the syllabus was so broad and loosely defined that any attempt at adequate supervision or reasonable examination was frustrated at the start. Charts were therefore devised limiting the work to some extent yet providing more than enough for a year's work that the teachers might have some choice. As a result, improvement in the work was apparent at the first examination following the issuing of the sheets and many requests were made that similar charts be provided in advanced drawing. This was not done, pending the adoption of a newer syllabus.

#### TRAINING CLASSES AND NORMAL SCHOOLS

During the past year a syllabus in drawing for training classes has been prepared by the chief examiner in drawing. This is well illustrated and will serve as a direct help during the limited amount of time devoted to the subject. It is based directly upon the syllabus and includes the simplified outline issued for the rural schools.

The time element is a serious problem for the subject of drawing in training classes. Coming in the first half of the year, the work is confined to fall nature drawing and is seriously interrupted by the Thanksgiving and Christmas holidays. Furthermore, two periods for twenty weeks, or forty lessons in this subject, are inadequate. Spring nature work is fully as important as fall drawing, if not more so, and at least eighty periods should be devoted to the subject. Two periods a week should be continued throughout the year.

Since 1911, conferences with normal school drawing teachers have been held in Albany and in Buffalo. These meetings have been not only helpful to each teacher in attendance but have been productive of correlated charts for grade teachers and specialized work in normal courses.

At the last conference all teachers were gathered in a joint meeting at Syracuse. Plans were discussed for a proposed normal school outline to be tested during the following year. A general topical plan was agreed upon and through the assistance of the grade

supervisors of Buffalo, subjects were proposed for the year's work. The general scheme of a basic plan for normal school drawing was heartily indorsed and the next meeting should present carefully formulated plans for a comprehensive and elastic normal school syllabus based upon the Syllabus for Elementary Schools now in use. Such a syllabus will unify and strengthen the normal courses which now differ in each school, owing to the broad and extensive treatment of the present syllabus.

The aim of drawing in both training classes and normal schools is to prepare teachers for instruction in that subject in the grades. The evident lack of training on the part of entering candidates necessitates most of the time in normal schools being spent upon technical expression. Methods must come through the presentation by the normal school instructor. The new secondary syllabus will undoubtedly greatly strengthen the preliminary academic training in the technic of drawing and design, permitting the normal school teacher to devote more attention to methods and classroom practice. The syllabus for normal schools should therefore briefly outline fundamental problems in drawing and handwork for the education of the child and define the principles and sequence to be developed in the teaching.

#### DRAWING CONFERENCES

Adequate State supervision by means of constant visitations in an attempt to inspect and help the schools has proved to be both inadvisable and impossible. Inadvisable because those schools in greatest need of assistance were often neglected as the State specialist attempted to make the complete round of schools; impossible because one person could not visit the nine hundred and more academic schools, even in three years and with nothing else to do. Personal interviews with the teachers are necessary and to meet the problem a series of teachers conferences was planned in 1911. They have since been in successful operation. Seventeen centers consisting of the larger cities have been designated as the places of meeting and teachers in the surrounding counties gather at the appointed date for the reading of formal papers and for informal discussion of perplexing problems with another and with the State representative. The conferences are well attended and the teachers have come to take a keen interest in their success.

In addition to the conferences, the State specialist handles an extensive correspondence, prepares different kinds of literature

relating to the subject, speaks at the various teachers' gatherings and travels to many schools in need of direct assistance. Thus the general supervision of the drawing and handwork is carried on. The State is large and the field is extensive. Progress is therefore slow but the work is gradually approaching a stage of unity and is surely reaching the point where the more fundamental problems in art education will be taught.

#### PREPARATION OF DRAWING TEACHERS

For three years reports have been written concerning the matter of the training of drawing teachers in the State normal schools. Fredonia Normal School and Potsdam Normal School offer special courses in this work. The work in Fredonia is unsatisfactory though teachers continue to be graduated. The course in Potsdam has never been fully organized owing to continued changes in the teaching force. Both of these schools should be carefully organized and the work should be placed upon a firm footing.

Reports have also been submitted with reference to the State Normal College. Here is opportunity to provide efficient courses for professional art teachers for the State. With the present teaching force this is impossible. At least six instructors in art work, adequate equipment and intensive courses in the teaching of academic drawing should be provided. Instruction should then be given in drawing, painting, design, modeling and the industrial arts.

#### MANUAL TRAINING

Manual training in the State has never been organized or generally supervised. As an advanced form of handwork, taught rather from the general than the vocational point of view, this work should receive early attention. Practical courses of an industrial nature should be carefully prepared, related drawing courses should be developed and annual conferences for discussion of the various problems should be organized.

#### DRAWING FOR VOCATIONAL SUBJECTS

There is urgent need for carefully prepared courses in drawing and design for vocational subjects. It has long been recognized that the element of art in a manufactured product determines to a large extent its money value. In the increasing demand for industrial schools, this fact should be constantly kept in mind. Courses

should be developed along such suggestive lines as follows: constructive design in furniture, decorative design for woodworkers, design and color in printing, costume design, color in personal dress, drawing for girls, household decoration.

### STATE CONFERENCES

Next to the problem of securing teachers who are prepared to undertake the work of vocational instruction is that of keeping those teachers who are already engaged in the work abreast of that which is being done by other teachers. With this in view, during the past year the specialists within the Division have conducted, in different sections of the State, conferences which have been attended by the teachers, principals and supervisors who were actively engaged in vocational instruction in state-aided schools as well as those who were interested in cooking, sewing, drawing, handwork and such other subjects as have been assigned to the work of this Division.

Following are typical programs for the three lines of work represented:

#### AGRICULTURE

An all-day conference was held at the State College of Agriculture during farmers week. The general topic under consideration was the course of study in agriculture. The following program indicates the nature of the work:

Report of committee on  
Dairy husbandry  
Animal husbandry  
Poultry husbandry  
L. A. TOAN, Chairman  
Report of committee on  
Apple growing  
General fruit growing  
F. N. DARLING, Chairman  
Report of committee on  
Cereal and forage crops  
Potato growing  
Soils and fertilizers  
NEIL J. PARKER, Chairman  
Home projects L. S. HAWKINS

As a result of the work of these committees and the opinions expressed by the twenty teachers of agriculture present, the suggested course of study has been modified by combining some of the half-year subjects to make full-year subjects and so allow the work to follow the seasons.

During the last week of the summer session, a four-day conference was held. The program follows:

Monday	Some problems of the small high school a Course of study b The teaching staff c The constituency
Tuesday	Agriculture as a school study a Essentials of the course b Laboratory and shop equipment c Some teaching problems
Wednesday	Home project work a Varying conceptions of education b Use of home opportunities in education c Extension of the educational ideal
Thursday	The teacher of agriculture a His qualifications b His opportunities

The general plan of the conference was for the chairman to outline the topic and then conduct a round table discussion.

#### INDUSTRIAL

9 — 9.30	Registration
9.30 — 12	Methods of teaching shopwork H. B. SMITH, State Normal College
	Discussion
	Methods of teaching correlated subjects ROSE I. HUGHES, Albany Vocational School
	Discussion
	Evening school courses W. C. SMITH, Director, Troy Vocational School
	Discussion
12 — 1.30	Luncheon
1.30 — 3.30	<i>Household arts section</i> Methods of teaching cooking ELLA C. HALE, Schenectady Vocational High School
	Discussion
	Methods of teaching sewing METTIE B. HILLS, The Central School, Troy
	Discussion
	Question box

#### DRAWING

9 a. m.	Registration
9.30 a. m.	Paper, "Wall paper and floor coverings" MISS COOK, Geneva
9.50 a. m.	Discussion
10 a. m.	Paper, "Psychology of drawing and manual training" DOCTOR BUCK, Geneseo Normal School
10.30 a. m.	Discussion
10.40 a. m.	Roll call. Short talks by teachers on successful problems in drawing and handwork
11.40 a. m.	Discussion

12	a. m.—1 p. m.	Recess
1	p. m.	Paper, "Metal work with simple apparatus" CARL JOHNONNOT, Mechanics Institute
1.30	p. m.	Discussion
1.40	p. m.	Paper, "Meaning and aim of art in education" R. B. FARNUM, Albany
2	p. m.	Discussion
2.10	p. m.	Paper, "Pictures for schoolrooms." Illustrated FLETCHER CARPENTER, East High School, Rochester
2.50	p. m.	Discussion
3	p. m.	Question box. R. B. FARNUM, Albany

#### TRAINING OF TEACHERS FOR VOCATIONAL INSTRUCTION

A new problem is presented by the task of selecting and training teachers for vocational instruction. The long established and traditional machinery for training teachers will fail to attract or select effectively those best fitted to teach in vocational schools. New devices must be created to meet the new needs.

More and more the vocational school is being organized on the basis of a recognition of three broad aims—training for industrial efficiency, training for citizenship and training for general intelligence. Undoubtedly as time goes on the classification of subject matter will be between that which is vocational, making for skill and insight in the industry, and that which is nonvocational, making for better and more intelligent citizenship. Hence vocational teachers will need to be trained to give instruction in shopwork, drawing, mathematics and other subjects which are intended to increase industrial efficiency, and nonvocational teachers will be needed to give instruction in subjects which promote general intelligence, such as civics, commerce, English and general science.

An efficient scheme for furnishing teachers must include the following steps: a general experience and equipment of a suitable character such as in the case of the trade instructor; mastery of the craft; in the case of the teacher of related subjects, knowledge of the craft and adequate academic training; in the case of the teacher of general or nonvocational subjects, adequate academic training and contact with life.

The qualifications of the shop instructor will include (*a*) knowledge of his trade; (*b*) knowledge of technical methods in use in the trade and command of drawing, mathematics, science and art as used in his trade; (*c*) a general education such as that which might be represented by elementary school graduation or its equivalent; (*d*) a teaching equipment which will give him familiarity with technical methods of school administration and the mechanics of schoolroom work as applied to shop room tasks and responsibilities;

(e) personal equipment such as will not be a handicap to him in the work.

The qualifications for the nonvocational teacher will include an appreciation of the conditions and problems of industry and such a knowledge, from the standpoint of the layman at least, of the more common machines and processes of the trades taught by the school as will enable him: (a) to use material drawn from the world of work in teaching such subjects as civics, economics, industrial history, English; (b) to utilize the affairs of industry and the activities of the shop as a means of promoting the pupil's interest and insight into the class work; (c) to make practical use of principles taught in such subjects as civics and economics, applying them to conditions and problems which the pupil as a wage-earner must sooner or later meet in industry and in citizenship; (d) to understand the aims and purposes of the industrial school in its responsibility for the pupil and to the industry; (e) to see clearly the relation of his own subject to that of his fellow teachers and the place and bearing of his own service on the total service which the school undertakes to render to the pupil and to the industry.

The courses for training teachers in industrial and trade schools will in general be of two types: (1) shorter courses like evening and part-time classes where the limited number of hours for instruction make it necessary for the class to confine its attention to the one problem of giving the prospective teacher a limited introductory teaching equipment for these schools and longer courses like those possible in all-day classes and (2) longer part-time classes available where the time makes it possible not only to give a more extensive teaching equipment for entrance to such schools but also supplementary preparation in such other necessary equipment as the training school itself, or thorough cooperative agencies, might give, like technical knowledge, additional commercial trade experience, industrial, social or civic contacts.

New York has been the first state in the Union to take up the question of training teachers for vocational education. It is doing this work in the State Normal College and the State Normal School at Buffalo. The formal traditional methods of training teachers has been departed from to some extent in the special departments which have been organized for the training of vocational teachers. This has been necessary because experience shows that any institution which represents the final stage of a continuous educational process, beginning at childhood, can not draw to any great extent

upon the wage-earners of any kind for its students. Such schools can not get trade-trained men, or give the proper trade training in the school. Normal schools are not usually organized to give actual shop experience, but rather for manual training preparation. If they were so organized as to give manipulative skill in all the processes of the trade, they would not give it to those expecting to use it for wage-earning, but rather as one of a number of teaching assets. It is not practical for such schools to give the novice progressive experience under actual trade experience.

The most pronounced success in these two institutions has been with the vocational school instruction where men have been taken who have had trade experience and are being trained in evening classes for advantageous entrance to industrial and trade schools. The design is to reach promising candidates among the workers and to give them teaching equipment while they are making a living. The advantages of the plan are clear. The student suffers no loss of wage. Sacrifice of time and energy necessary to attend such a class constitutes in itself an effective method of selecting promising men for training. It gives a large source of supply from which to choose students. It is the consensus of opinion that the evening training schools for trade workers form the one plan which promises most immediate relief and the possibility of reaching and training a large supply of trade workers to meet present and future demands.

An evening school for training practical mechanics for teaching their trades in the vocational schools of the State is now in operation in the State Normal College. Eighteen men, all the school can accommodate at present, have registered. These men are selected only on the recommendation of the employer and on personal application. Four trades are represented in the teaching: machinist, plumber, cabinetmaker and patternmaker. The classes meet on Tuesday and Thursday evenings between the hours of 7.15 and 9.30 for forty weeks. Five courses are offered: mechanics of teaching, shop mathematics, mechanics of drawing for each trade, shop practice and practice teaching. It is proposed next year to establish such relationship with the evening schools as will make it possible for these night school men to obtain practice teaching under supervision in the evening vocational schools.

The evening school department of the State Normal School at Buffalo is continuing with marked success its venture of last year into the field of training practical mechanics, who are employed during the day, to become vocational school teachers. The work

in this school covers the same ground as the day normal school training teachers of vocational work and it is possible for a good student to complete the course in three years if he is a master of his trade. This department has 76 mechanics; 8 per cent are high school graduates; 25 per cent attended high school but did not graduate; 67 per cent attended evening school prior to entering the normal evening school. Forty per cent of these men are regularly employed as foremen, 13 per cent have had some experience as foremen and the remainder are regularly employed as journeymen.

The School of Science and Technology connected with Pratt Institute has this year developed an evening course in trade teaching for trade workers who wish to become teachers. The class is taught by a man who has had extended experience as a teacher in an industrial school and as a director of one of the leading Massachusetts schools. The class meets three nights a week, two nights being devoted to instruction in methods of teaching industrial school and the third night to actual practice teaching in the New York Evening Trade School under the supervision of the instructor of the class. To be eligible to the class, the applicant must give satisfactory evidence that he is a successful journeyman or foreman in his trade; he must be in good health and less than forty years of age. No entrance examinations are required but the instructor of the class must be satisfied by a personal interview that the applicant is fitted to undertake the work. It is readily seen that such a scheme for training teachers already employed gives the journeymen an opportunity to find out before they give up their work whether they will like teaching and are adapted to it. It puts them in touch with teaching positions and provides them with a training and teaching experience necessary to make them eligible for the position of trade teaching in the vocational schools.

#### TYPES OF COOPERATION NOW EXISTING

It is evident that the basis of all successful vocational teaching must rest upon a close cooperation between the school, the employee and the employer. The outgrowth of this relationship must be an agreement that will clearly define certain conditions surrounding the work of the school; the length of apprenticeship training and credit for work done in school and rate of pay during such apprenticeship. Such a working agreement divides the responsibility of the apprenticeship training and offers an incentive for the boy to enter a certain line of work.

The following agreement is very significant in that it clearly defines the length of the apprenticeship course, the length of time to be spent in school, and the rate of pay during the period of apprenticeship. This agreement is one of several types that include the same fundamentals.

AGREEMENT BETWEEN THE ROCHESTER TYPOTHETAES AND THE  
ROCHESTER SHOP SCHOOL

The term of apprenticeship in the printing trade shall be four years, three months of which shall consist of a preliminary or "try-out" course at the Rochester Shop School. During this preliminary course the fitness of the pupil for the printing trade shall be determined.

Upon completing this preliminary course, the pupil may enter the employment of some printing plant as an apprentice, the Typothetae agreeing to provide places for a certain number of pupils each year. The apprentice shall alternate weekly between the shop school and said printing plant, and is to receive from the employer a weekly wage of \$4 for the balance of the first six months; \$4.50 for the second six months; \$5 for the third six months; and \$5.50 for the fourth six months. The employer is to pay wages for the school time as well as for shop time.

After this period, having faithfully performed his duties, he may devote the remainder of his apprenticeship entirely to the shop, and for which he shall receive \$9 a week for the first six months; \$10 a week for the second six months; \$11 a week for the third six months; and \$12 a week for the fourth six months, during which time, however, he shall be considered under the supervision of the shop school, and upon completion of the school term and apprenticeship, having passed all the examinations and being graduated from the shop school, he shall receive from the employer as a gratuitous bonus, in addition to his salary and not as any part thereof, the sum of \$100.

The following is a copy of the resolutions adopted by the executive committee of the Master Printers Association at their meeting June 27, 1912:

*Whereas*, A detailed plan for the formation of a central continuation school for the benefit of boys desirous of learning the printing trade, and for the further advancement of apprentices at present employed in printing offices, has been presented by the superintendent of vocational education of the city of Buffalo; be it resolved that this association is heartily in favor of such movement and pledges to it, its active and moral support; and be it further resolved that we recommend all our members to send their apprentices to such school for at least a half day each week without deduction of pay for time spent during such instruction.

The Rochester Chamber of Commerce appointed a committee to submit a plan of education for the machine industries. This report was recently unanimously adopted by its executive committee. A portion of this report is quoted in order to make clear the possibilities of close economic and technical relationship between the employers and the school people:

1 That the shop school shall give to boys who are not less than 14 years old and have completed at least the sixth grade, or preferably to boys who have completed the work of the elementary schools, a general industrial or

"try-out" course of such length as the school authorities may deem necessary, and shall select those who have aptitude for and an ambition toward the trade of machinist.

2 That the shop school shall give boys thus selected a preparatory course of approximately two years, one-half of each day being spent in shop practice and the other half in the study of shop mathematics, mechanical drawing, applied science, industrial history, civics and English.

3 That upon the satisfactory completion of this course the metal trades employers of Rochester shall employ these boys in such numbers as trade conditions and shop management shall warrant at the following schedules of wages: \$9 a week for the first six months; \$10 a week for the second six months; \$11 a week for the third six months; \$12 a week for the fourth six months.

NOTE.—In the event of any boys earning by piece work more than the above scale, the balance shall be held back by the employer and paid to the boy as a bonus at the completion of the two years' apprenticeship.

4 That during the two years' apprenticeship the employer shall allow each boy, during working hours, an amount of time off equivalent to one-half day each week, for continuing his studies, such time to be taken when manufacturing conditions will best permit.

5 That the first three months of employment, as provided in articles 3 and 4, shall be considered a probationary period and the diploma of the school shall not be awarded until the satisfactory completion of this probationary period.

6 That the members of the machine industry shall select a committee of three of their number who shall (1) inspect frequently the work of the shop school and offer criticisms and suggestions for the improvement of the work; (2) suggest tests that shall measure the pupil's progress in manipulative skill and technical knowledge; (3) suggest tests that shall measure the qualifications of boys for graduation.

#### THE MOVEMENT FOR VOCATIONAL GUIDANCE

Vocational guidance as a part of the vocational education movement has made considerable progress in the past year. The program of effort includes a survey of social needs as represented by occupational activities, which means the intensive study of occupations, including their problems, needs, limitations and possibilities for workers within them; the study of human capacity or talent in relationship to its development in rendering a maximum of social service through occupational activities which includes an intensive study of individuals whereby there may be discovered their capacities, possibilities, and limitations for efficient service through the respective occupations; and the provision of means by which the appropriate adjustment of discovered capacity to needs and opportunities for its appropriate use may be made.

Its methods in education are as follows:

A Vocational education survey

1 Studies of the vocations with reference to the qualities and training demanded

- a Sex of the employees
- b Qualities needed for success—physical, mental
- c Age of possible entrance to various vocations
- d Minimum training for successful entrance
- e Opportunities for training within the vocation
- f Training needed not provided within the vocation
- g Weaknesses in education apparent in beginners
  - (1) In general education
  - (2) In special training
  - (3) In attitude, responsiveness, adaptability etc.

2 Studies of children and young people with reference to the discovery of vocational aptitudes and fitness; vocational analysis.

3 Possibilities of a vocational index.

- a Through the regular school subjects
- b By specialized tests

#### B Meeting the situation revealed by the survey

1 Functions and possibilities of the school with reference to vocational direction and training

a Prevocational activities

- (1) Vocational analysis
- (2) Vocational information: (a) the data included under A1 above; (b) other factors such as demands for workers, wages, length of day, length of season, opportunities for advancement, risks of life, limb and health, social conditions and opportunities of workers, etc.
- (3) Differentiated work bearing upon a group of prospective vocations, familiarizing pupils with related subject matter, underlying principles, and appreciable technical and practical elements.  
(General industrial school)
- (4) Specific vocational training for pupils sufficiently mature. (Trade school)

b Continuation work after employment is begun

- (1) Supplementary education and training
- (2) Follow-up studies

2 Agencies auxiliary to the school in adjusting vocational aptitudes and fitness with vocational opportunities.

- a Vocation bureaus: placement
- b Vocational advisers and counselors

- 3 The economic factor in securing adequate prevocational education for prospective workers and further education for youthful employees. Provision for the removal of economic necessity of premature withdrawal from school to enter vocations. Budget studies, scholarships, pensions, part-time school plans.
- C The unification of possibilities and methods for a constructive attack in solving the problems in vocational guidance.







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